

## Project II: Evaluation of new recreational and commercial regulations on catfish in the Ohio River

### Project Objectives:

1. Determine abundance (CPUE), size structure, and condition of blue, channel, and flathead catfish in the Ohio River, and evaluate the effects of new regulations on blue, channel, and flathead catfish in the Ohio River, particularly trophy-size catfish.
2. Quantify age, growth, and mortality of the three species in each reach, and compare to previous data to determine if any changes have occurred over time

### *Trotline Surveys*

During summer 2017, trotlines (50 hooks/line) baited with frozen gizzard shad were used to sample blue catfish, channel catfish, and flathead catfish. KDFWR crews completed sampling in the Meldahl, Cannelton, and Smithland pools of the Ohio River, and Indiana Department of Natural Resources sampled in the JT Meyers Pool. One-hundred twenty-seven total trotlines were fished throughout those pools: 35 in Meldahl Pool, 35 in Cannelton Pool, 32 in JT Meyers Pool, and 25 in Smithland Pool (Table 1). CPUE of blue catfish and channel catfish decreased from 2016 sampling in both the upper and trophy permit sections of the Ohio River (Table 2). As was the case in 2016, blue catfish CPUE (2.7 fish/line) in 2017 was higher than the historical average (2.2 fish/line) in the upper section of the Ohio River, but below the historical average (2.7 fish/line) in the trophy permit section (2017 CPUE=1.1 fish/line). The 2017 channel catfish CPUE in both the upper (1.9 fish/line) and trophy permit (1.6 fish/line) were at or above the historical averages (1.9 fish/line and 1.2 fish/line, respectively). Flathead catfish CPUE in 2017 remained low and decreased slightly from 2016 levels in the upper section and increased slightly in the trophy permit section of the river.

Blue catfish collected with trotlines ranged from 14.5 – 43.7 in in the upper section of the Ohio River with a mean length of 25.1 in, and ranged from 12.3 – 33.7 in in the trophy permit section with a mean length of 24.7 in (Table 3). Lengths of channel catfish ranged from 12.6 – 26.2 in with a mean length of 18.4 in in the upper section of the Ohio River, and ranged from 9.8 – 30.7 in with a mean length of 20.3 in in the trophy permit section. Flathead catfish lengths ranged from 27.0 – 34.8 in with a mean length of 30.9 in in the upper section, and ranged from 18.2 – 28.6 in with a mean length of 22.3 in in the trophy permit section of the Ohio River. Trophy blue catfish were only captured in the Meldahl Pool during trotline sampling, and one trophy channel catfish was collected in the Smithland Pool. No trophy flathead catfish were observed during trotline sampling. Overall, trophy catfish percentage for all three species was 2.9% of total catch, continuing a downward trend since 2015 (4.8% in 2015, 3.1% in 2016).

Trotline catch rates for different size groups of each species of catfish were also examined. Overall, blue catfish CPUE had been increasing gradually each year since 2013 but decreased in 2017. Most size groups examined in the trophy permit section of the Ohio River have remained fairly stable over the years; however, all size groups examined showed slight decreases in catch rates from 2016 to 2017 (Table 4; Figure 1). Channel catfish CPUE had also been increasing each year since 2013, but decreased slightly in 2017. Catch rates of all size groups examined have remained fairly stable and CPUE of  $\geq 28.0$  in channel catfish has remained low throughout sampling (Table 5; Figure 2). Flathead catfish are not as commonly sampled on trotlines, and CPUE for all size groups examined have remained consistently low since 2004 (Table 6; Figure3).

One commercial trotline ride-along was completed in October 2017. Results from this ride-along as well as conversations with multiple commercial fishers have shed light on some potential drawbacks with our methods. Though equipment and the way gear was fished was nearly identical, multiple commercial fishers stated frozen bait (currently KDFWR uses frozen gizzard shad) severely decreased catch rates. They suggested fresh cut bait regardless of species. Although it was only one occasion, the commercial trotline ride-along yielded a much higher catch rate than Department sampling, and better catch rates of larger blue catfish. After examining current methods used by the Department, it was evident that low-pulse electrofishing provided better estimates on relative abundance and size structure of blue catfish;

however, trophy blue catfish were still believed to be underrepresented. In order to combat these issues, trotline methods will be altered beginning in 2018 with a larger focus on sampling trophy blue catfish. Fresh cut bait of various rough fish species will be gathered early in each week, and will be fished using size 10/0 circle hooks (currently using 5/0). The combination of fresh bait and larger hooks may produce better catch rates while excluding smaller fish (already effectively sample by electrofishing) from the sample and therefore provide a more accurate estimate on trophy blue catfish populations.

### *Hoop Net Surveys*

*Gear efficiency side project*—Department hoop net sampling has historically yielded low catch rates, which compared to other sampling methods are not believed to be representative of catfish populations in the Ohio River. In spring 2017, a side by side comparison of unbaited versus baited (ZOTE<sup>®</sup> soap) nets was conducted to evaluate hoop net efficiency and potentially develop new standard methods for hoop net sampling on the Ohio River. Five sites in the Meldahl Pool of the Ohio River were sampled with ten unbaited hoop nets and ten baited hoop nets at each site. Nets fished for two nights, after which fish were removed and all species of catfish (blue catfish, channel catfish, and flathead catfish) were measured to the nearest 0.1 in and weighed to the nearest 0.01 lb. Nets were then reset in the same locations for an additional two nights with the opposite baiting method (i.e., nets that were unbaited were baited with soap and vice versa).

A total of 78 unbaited hoop nets and 77 baited nets were set and successfully recovered for a total of 156 and 154 net-nights, respectively. CPUE of blue catfish in unbaited hoop nets was <0.1 fish/net-night compared to 0.4 fish/net-night in baited hoop nets, while catch rate of channel catfish was 0.3 fish/net-night in unbaited hoop nets and 7.6 fish/net-night in baited hoop nets. Flathead catfish CPUE was 0.6 fish/net-night in unbaited hoop nets and 0.2 fish/net-night in baited hoop nets (Table 7). An analysis of variance (ANOVA) was used to test for differences in CPUE of each species of catfish between unbaited and baited hoop nets. Blue catfish ( $P<0.01$ ) and channel catfish ( $P<0.01$ ) were both captured at significantly higher rates in nets baited with ZOTE<sup>®</sup> soap than in unbaited nets. Conversely, flathead catfish catch rate was higher in unbaited nets ( $P<0.01$ ). Differences in catch rates impacted the species composition within nets (Table 8). A Chi-square goodness of fit test revealed that percentage of total catfish catch for blue catfish ( $P=0.02$ ) and channel catfish ( $P<0.01$ ) was significantly higher in baited hoop nets than in unbaited hoop nets. Flathead catfish comprised a higher percentage of total catch in unbaited hoop nets than in baited hoop nets ( $P<0.01$ ).

Blue catfish in unbaited hoop nets ranged from 10.8 – 27.1 in with a mean length of 19.6 in and ranged from 4.6 – 21.5 in with a mean length of 10.0 in in baited hoop nets. Lengths of channel catfish ranged from 3.8 – 27.5 in in unbaited hoop nets with a mean length of 17.2 in, and ranged from 3.7 – 29.7 in with a mean length of 15.3 in in baited hoop nets. Flathead catfish lengths ranged from 12.0 – 44.0 in with a mean length of 22.1 in in unbaited hoop nets, and ranged from 9.4 – 43.4 in with a mean length of 21.0 in in baited hoop nets (Table 8). Differences in mean length were tested using an ANOVA. Channel catfish sampled in unbaited hoop nets were significantly larger than those captured in baited hoop nets ( $P<0.01$ ), while no differences were found for blue catfish or flathead catfish. Additionally a Kolmogorov-Smirnov test was used to test for differences in length-frequency between unbaited and baited hoop nets. As with mean length, no significant difference were found for blue catfish and flathead catfish. There was a significant difference in length-frequency for channel catfish ( $P<0.01$ ) indicating that unbaited nets were skewed toward larger channel catfish.

Based on the results of this side project, KDFWR has decided that future hoop netting on the Ohio River will be done using ZOTE<sup>®</sup> soap as bait. This change in methods will provide a more representative sample of the channel catfish population in the Ohio River. Although flathead catfish catch rates were significantly lower than in unbaited nets, size structure/distribution was similar, and other sampling methods (i.e., commercial ride-alongs, electrofishing) can be used to better grasp population abundance trends.

*Commercial hoop net ride-alongs*— Ride-alongs with commercial fishers using hoop nets were conducted in the McAlpine and JT Meyers pools to gather commercial catch data of blue catfish and flathead catfish.

Methods such as net size, soak time, baiting, and habitat can vary widely between and even among commercial fishers. Trend data should be viewed with caution, and more emphasis placed on the presence of larger fish in the sample. Data collected from these ride-alongs are meant to supplement Department hoop net data. Only blue catfish and flathead catfish are measured in an effort to minimize time lost by commercial fishers. Observations from commercial ride-alongs in previous years have indicated that channel catfish are abundant and size structure is acceptable. Unbaited, single nets were set overnight for three to four consecutive net nights in the main stem of the river. Fifty-eight hoop nets were set for a total of 189 net-nights; 129 in the upper sections and 60 in the trophy permit section (Table 9). Blue catfish overall CPUE in 2017 was 0.1 fish/net-night and was below historical average hoop net catch of 0.6 (Table 10). Blue catfish CPUE was at an all-time low; however, blue catfish are not effectively sampled with hoop nets, and variance in CPUE is typically high and influenced heavily by environmental factors. Flathead catfish overall CPUE was 1.1 fish/net-night, and was near historical averages in both the upper and trophy permit sections of the Ohio River.

Blue catfish collected in commercial hoop nets ranged from 18.6 – 35.7 in in the upper section of the Ohio River with a mean length of 26.1 in, and ranged from 18.2 – 37.8 in with a mean length of 26.2 in in the trophy permit section of the Ohio River (Table 11). Trophy blue catfish accounted for 20.0% of fish sampled in the upper section, 11.1% in the trophy permit section, and 13.0% overall. Flathead catfish lengths ranged from 15.5 – 42.9 in with a mean length of 26.4 in in the upper section, and ranged from 16.3 – 40.1 in with a mean length of 25.0 in in the trophy permit section of the Ohio River. Trophy flathead catfish accounted for 9.3% of flathead catfish sampled in the upper section of the Ohio River, 7.9% in the trophy permit section, and 8.8% overall.

Catch rates for different size groups of each species of catfish were also examined. Total CPUE of blue catfish has declined for two consecutive years. In both the upper and trophy permit sections of the river, this is related to declining catch rates in the 20.0 – 29.9 in and 30.0 – 34.9 in size groups (Table 12). As previously mentioned, blue catfish are not effectively sampled in hoop nets, and these declines should be viewed cautiously since other sampling methods such as electrofishing have shown increasing catch rates in the aforementioned size classes. Overall flathead catfish CPUE had declined each year since 2013; however, increases in all size groups except the <12.0 in size group in both the upper and trophy permit sections (Table 13).

*Department hoop net surveys*—Department hoop netting was conducted in the Meldahl, Cannelton, and Smithland pools to gather data from hoop net catch of blue catfish, channel catfish, and flathead catfish. Single nets baited with ZOTE<sup>®</sup> soap were set overnight for two consecutive net nights in the main stem of the river. A total of 96 hoop nets were set for a total of 192 net-nights; 106 in Meldahl Pool, 56 in Cannelton Pool, and 30 in Smithland Pool (Table 14). Blue catfish overall CPUE in 2017 was 0.3 fish/net-night (0.4 fish/net-night in the upper section and <0.1 fish/net-night in the trophy permit section). Catch rate of channel catfish was 8.0 fish/net-night in the upper section of the Ohio River and 2.0 fish/net-night in the trophy permit section of the Ohio River (7.0 fish/net-night overall). Catch rate of flathead catfish was 0.3 fish/net-night in the upper section of the Ohio River and 0.1 fish/net-night in the trophy permit section of the Ohio River (0.3 fish/net-night overall; Table 15). This was the first year using bait in hoop nets so comparing to previous years catches should be done with caution. Catch rates in the trophy permit section of the Ohio River were consistently lower likely due to the timing of sampling, as this section was sampled later than normal due to time constraints. Effort will be made in future years to sample during the same period as the upper section.

Blue catfish collected in hoop nets ranged from 5.4 – 28.9 in in the upper section of the Ohio River with a mean length of 17.3 in, and only one blue catfish (6.8 in) was captured in the trophy permit section (Table 16). There were no trophy blue catfish sampled with hoop nets in the Ohio River in 2017 (Table 17; Figure 1). Lengths of channel catfish ranged from 4.4 – 29.7 in with a mean length of 15.8 in in the upper section of the Ohio River, and ranged from 8.2 – 21.8 in with a mean length of 12.8 in in the trophy permit section. Trophy channel catfish accounted for 0.2% of the catch in the upper section, 0% in the trophy permit section and 0.1% of the overall catch. Catch rates of trophy channel catfish have remained low throughout sampling years (Figure 2). Flathead catfish ranged from 11.5 – 43.4 in with a mean length of 21.5 in in the upper section, and ranged from 14.7 – 20.5 in with a mean length of 17.7 in in the trophy

permit section of the Ohio River. Trophy flathead catfish accounted for 5.8% of flathead catfish sampled in the upper section of the Ohio River, 0% in the trophy permit section, and 5.4% overall. CPUE of trophy flathead catfish has remained below 0.1 fish/net-night since 2006 (Figure 3).

Hoop net catch rates were also examined for different size groups of each species of catfish. Blue catfish CPUE of all size groups examined was 0.1 fish/net night or less in both sections of the Ohio River (Table 17). Channel catfish catch rates were higher in the upper section for each size group, and the 12.0 – 19.9 in size group had the highest catch rates in both the upper and trophy permit sections (Table 18). CPUE of flathead catfish was slightly higher in the upper section of the Ohio River but catch rates for both the upper and trophy permit sections were similar across all size groups in 2017 (Table 19).

### *Electrofishing Surveys*

Low-pulse DC electrofishing was conducted in June 2017. Six pools were sampled; Meldahl, Markland, and Cannelton in the upper section and Newburgh, JT Meyers, and Smithland in the trophy permit section. A total of 30.0 hr of electrofishing effort was conducted (15.0 hr in the upper section and 15.0 hr in the trophy permit section) resulting in a total catch of 756 blue catfish, 187 channel catfish, and 1217 flathead catfish (Table 20). Overall CPUE of blue catfish was a record high of 25.2 fish/hr and well above the historical average of 13.2 fish/hr (Table 21). The same trend can be seen in both the upper section of the Ohio River (CPUE=20.3 fish/hr), and trophy permit section of the Ohio River had its second highest catch rate (CPUE=30.1 fish/hr). Channel catfish are not as susceptible to electrofishing as blue catfish and flathead catfish, and CPUE of channel catfish has been variable over the seven years of sampling. Overall CPUE of channel catfish in 2017 was 6.2 fish/hr, identical to 2016. CPUE of channel catfish was 7.1 fish/hr in the upper section of the Ohio River, and 5.3 fish/hr in the trophy permit section. Overall flathead catfish CPUE was also a record high 40.6 fish/hr and well above the historical average (29.1 fish/hr). The 2017 CPUE of flathead catfish in the upper section of the Ohio River was 39.4 fish/hr, while CPUE of flathead catfish in the trophy permit section was 41.7 fish/hr.

Blue catfish collected with electrofishing ranged from 5.3 – 43.5 in in the upper section of the Ohio River with a mean length of 19.4 in, and ranged from 3.8 – 43.8 in with a mean length of 18.1 in in the trophy permit section (Table 22). Trophy blue catfish accounted for 2.6% of fish sampled in the upper section, 1.6% in the trophy permit section of the Ohio River, and 2.0% overall. Lengths of channel catfish ranged from 3.0 – 24.2 in with a mean length of 14.1 in in the upper section of the Ohio River, and ranged from 3.7 – 24.2 in with a mean length of 13.1 in in the trophy permit section. No trophy channel catfish were sampled. Flathead catfish lengths ranged from 3.6 – 50.5 in with a mean length of 17.3 in in the upper section, and ranged from 3.6 – 44.9 in with a mean length of 16.2 in in the trophy permit section of the Ohio River. Trophy flathead catfish accounted for 2.4% of flathead catfish sampled in the upper section of the Ohio River, 1.6% in the trophy permit section, and 2.0% overall.

Electrofishing catch rates were also examined for different size groups of each species of catfish. Trends in the CPUE of blue catfish size group are similar for the upper and lower sections. CPUE of <12.0 in, 12.0 – 19.9 in, 20.0 – 29.9 in, and 30.0 – 34.9 in blue catfish in the upper section have consistently been lower than those in the trophy permit section, while CPUE of trophy blue catfish  $\geq 35.0$  in has been similar over time (Table 23; Figure 1). Overall channel catfish electrofishing CPUE has decreased since 2013. This trend is consistent with the trophy permit section of the Ohio River (Table 24). Trophy channel catfish electrofishing has remained at 0.0 fish/hr since 2004 (Figure 2). Flathead catfish catch rates have remained relatively stable since 2013 with slightly increasing catch rates evident in the 20.0 – 29.9 in, 30.0 – 34.9 in, and  $\geq 35.0$  in size groups (Table 25; Figure 3).

### *Catfish Tournament Surveys*

Recreational catfish tournaments were attended in four Ohio River pools to gather additional catfish data. A total of 6 tournaments were attended with 730 boats competing. Collectively, catfish tournament anglers weighed in 1,138 blue catfish, 354 channel catfish, and 140 flathead catfish, with a total catfish CPUE of 2.2 fish/boat (maximum possible CPUE=5.0 fish/boat) and was identical to 2016. Of all catfish weighed in, 9.8% were considered trophy catfish as defined by recreational regulations discussed above

(Table 26). Catch rates for blue catfish and flathead catfish have remained stable since 2013, while channel catfish have been stable the last two years after a small decline from 2013 to 2015 (Table 27).

Blue catfish sampled at catfish tournaments during 2017 ranged from 10.5 – 44.5 in with a mean length of 25.8 in and mean CPUE of 1.5 fish/boat in the upper section of the river, and ranged from 15.9 – 47.4 in with a mean length of 29.4 and mean CPUE of 1.6 fish/boat in the trophy permit section (Table 28). Channel catfish lengths ranged from 13.2 – 30.2 in with a mean length of 23.2 in and mean CPUE of 0.7 fish/boat in the upper section, and ranged from 14.7 – 29.2 in with a mean length of 22.3 in and mean CPUE of 0.3 fish/boat in the trophy permit section of the Ohio River. Flathead catfish are not typically targeted by tournament anglers, and as a result were not as commonly caught (CPUE=0.2 fish/boat in both the upper and trophy permit sections). Flathead catfish ranged from 13.1 – 40.9 in with a mean length of 24.8 in in the upper section of the Ohio River, and ranged from 17.6 – 42.3 in with a mean length of 27.5. Tournament catch rates of trophy catfish for blue catfish, channel catfish, and flathead catfish have remained stable since 2013 (Figures 1, 2, and 3).

Tournament catch rates were also examined for different size groups of each species of catfish. Overall, blue catfish CPUE has remained stable since 2013; however, CPUE of 20.0 – 29.9 in blue catfish in the upper section has increased slightly (Table 29). Additionally, CPUE of 12.0 – 19.9 in blue catfish in the upper section of the Ohio River have decreased each year since 2013, likely because CPUE of 20.0 – 29.9 in blue catfish has increased (bigger fish brought to weigh in). Catch rates of all size groups of blue catfish in the trophy permit section of the river have fluctuated very little over the past four years. Overall tournament CPUE of trophy blue catfish in the Ohio River has remained at 0.2 fish/boat since 2013 (Figure 1). Catch rates of channel catfish have decreased since 2013 (Table 30). This decrease can be attributed to a decrease in CPUE of 20.0 – 27.9 in channel catfish in the upper section of the Ohio River. Trophy channel catfish CPUE has remained at 0.1 fish/boat or less since 2013 (Figure 2). CPUE of channel catfish may continue to decrease in the future if more and larger blue catfish and flathead catfish are brought to weigh in by tournament anglers. Flathead catfish tournament CPUE for all size groups examined have remained consistent since 2013 (Table 31), and trophy flathead catfish CPUE has remained below 0.1 fish/boat since 2013 (Figure 3).

### *Relative Weight*

Relative weight ( $W_r$ ) was also calculated for each species of catfish. Fish collected from all sampling methods used including catfish tournaments were combined to provide a more representative estimate for the entire populations of each catfish species. Overall  $W_r$  of blue catfish in 2017 was 106 and has remained at 105 or higher since 2013 (Table 32). Relative weight of channel catfish was 88 in the upper section of the Ohio River and 93 in the trophy permit section (89 overall) which was the lowest since 2013 in each area. Flathead catfish overall relative weight was 107, and was 102 in the upper section and 94 in the trophy permit section. Overall, all three species appear to be in good condition throughout the river.

### *Age, Growth, and Mortality*

In spring 2017, otoliths were taken from blue catfish, channel catfish, and flathead catfish to assess mean lengths at age of capture for each species. Separate samples were taken from the upper and trophy permit sections. Based on Von-Bertalanffy growth equations, growth of blue catfish was similar regardless of river section or sex. On average, it took blue catfish 17.7 years to reach trophy size ( $\geq 35.0$  in; Table 33). Channel catfish exhibited slightly faster growth in the upper section of the Ohio River, but no large differences were seen in growth between sexes. Overall, channel catfish reached trophy size ( $\geq 28.0$  in) at 20.0 years (Table 34). There was no noticeable difference in growth rates of flathead catfish between sexes; however, flathead catfish exhibited faster growth in the trophy permit section of the Ohio River. On average a flathead catfish in the upper section reached trophy size ( $\geq 35.0$  in) at 20.6 years, while flathead catfish in the trophy permit section reached trophy size nearly three years quicker at 17.7 years. Overall, flathead catfish reached trophy size at 20.1 years (Table 35). Growth of all three species of catfish sampled was extremely variable, particularly as fish grew older and larger, with some fish growing much slower than the Von-Bertalanffy model described and some growing much faster.

Total annual mortality estimates were made on all three species of catfish based off length-at-age of capture data from otoliths and paired with unaged catfish collected with multiple sampling techniques in 2017. Using Fishery Analysis and Modeling Simulator (FAMS), a separate weighted catch-curve regression was run on each species of catfish for each sampling method to calculate a range of total annual mortality estimates. In 2017 river-wide total annual mortality rates ranged from 17.4 – 18.9% for blue catfish and were lower in the upper section (10.4 – 12.4 %) than the trophy permit section (18.5 – 19.1%; Table 36). Channel catfish total annual mortality rates ranged from 20.8 – 27.9% overall (21.0 – 26.9% in the upper section and 18.0 – 24.5% in the trophy permit section). Overall flathead catfish total annual mortality rates ranged from 15.4 – 18.2% (14.8 – 18.2% in the upper section and 14.8 – 17.7% in the trophy permit section). Mortality rates for all species and in each section increased, with the exception of blue catfish in the upper section of the Ohio River. The estimates represent the most accurate rates, as a far more extensive age and growth sample was taken in 2017 as compared to 2012.

### *Commercial Fishing Industry*

Commercial fishing for catfish has long been present in the Ohio River, but recent concerns of potential overharvest have warranted further investigations. Harvest of blue catfish began increasing from 2004 to 2005 and has remained near that level through 2015 with a peak in pounds harvested in 2012. Harvest again increased sharply in 2016 and 2017 (Figure 4). Channel catfish harvest has fluctuated but generally increased from 2007 – 2012. Since then channel catfish harvest has remained in the 125,000 – 175,000 lbs range for the Ohio River. Flathead catfish trends are similar to channel catfish; however, harvest has dipped below average the past three years. Unfortunately, commercial fish harvest reports do not include detailed information about gear (number of net nights, baited vs. unbaited, length of gillnet, etc.); however, the number of hooks fished for trotlines as well as number of hoop nets fished is required to be reported. Although trotline and hoop net harvest should not be considered indicative of the entire commercial catfish harvest, it is the best available method to analyze trends in commercial catfish harvest rates. Effort (number of hooks for trotlines and number of nets for hoop nets) and pounds harvested by method were examined to determine if harvest rates varied over the years. Trotlines are more effective at capturing blue catfish and channel catfish, while hoop nets are more effective when targeting flathead catfish according to commercial harvest data. Each species was examined according to the most effective gear. Although there were fluctuations in harvest from 2004 – 2017, harvest rates of channel catfish have remained relatively stable over that same time period (Figure 5). The harvest rate of blue catfish increased sharply from 2004 to 2005, then increased gradually from 2005 – 2017, and is currently at an all-time high. Recent decreases in pounds of catfish harvested in 2013 and 2014 are likely not a result of decreased harvest rates, but rather a decrease in effort. Flathead catfish harvest has remained between 5 – 15 pounds/net; however, a drastic spike in harvest occurred in 2012 and 2013 (Figure 6). Reasons for this extreme peak in harvest are not known, but could be a result of prolonged favorable fishing conditions or demand for fish.

Table 1. CPUE (fish/line) of blue catfish, channel catfish, and flathead catfish collected during trotline surveys on the Ohio River in 2017. Standard errors are in parentheses.

Pool	Pool	No. of trotlines	Effort (hooks)	No. of Blue Catfish	CPUE	No. of Channel Catfish	CPUE	No. of Flathead Catfish	CPUE
Upper	Meldahl	35	1750	73	2.1 (0.3)	54	1.5 (0.2)	1	<0.1 (<0.1)
	Cannelton	35	1750	115	3.3 (0.3)	77	2.2 (.3)	1	<0.1 (<0.1)
	Total	70	3500	188		131		2	
	Mean				2.7 (0.2)		1.9 (0.2)		<0.1 (<0.1)
Trophy permit	JT Meyers	32	1600	38	1.2 (0.3)	57	1.8 (0.2)	2	0.1 (<0.1)
	Smithland	25	1250	25	1.0 (0.3)	35	1.4 (0.3)	1	<0.1 (<0.1)
	Total	57	2850	63		92		3	
	Mean				1.1 (0.2)		1.6 (0.2)		0.1 (<0.1)
Overall	Total	127	6350	251		223		5	
	Mean				2.0 (0.2)		1.8 (0.1)		<0.1 (<0.1)

Table 2. CPUE (fish/line) of blue catfish, channel catfish, and flathead catfish collected during trotline surveys on the Ohio River from 2004 - 2017. Standard errors are in parentheses.

Section	Year	Species		
		Blue catfish	Channel catfish	Flathead catfish
Upper	2005	0.0	1.9 (0.4)	0.6 (0.3)
	2010	4.0 (0.4)	2.6 (0.3)	<0.1 (<0.1)
	2012	2.3 (0.6)	2.3 (0.8)	0.1 (<0.1)
	2013	1.0 (0.5)	1.3 (0.3)	0.1 (<0.1)
	2014	1.9 (0.4)	1.4 (0.2)	0.3 (0.1)
	2015	1.9 (0.3)	1.6 (0.3)	0.2 (0.1)
	2016	3.6 (0.3)	2.2 (0.2)	0.1 (<0.1)
	2017	2.7 (0.2)	1.9 (0.2)	<0.1 (<0.1)
	Mean	2.2 (0.5)	1.9 (0.2)	0.2 (0.1)
Trophy permit	2004	1.5 (0.3)	1.1 (0.4)	0.1 (0.1)
	2005	1.8 (0.4)	0.5 (0.1)	0.1 (0.1)
	2006	6.6 (1.2)	1.2 (0.3)	<0.1 (<0.1)
	2007	2.4 (0.5)	1.2 (0.4)	<0.1 (<0.1)
	2008	5.9 (0.7)	1.6 (0.3)	0.1 (<0.1)
	2011	3.9 (0.6)	2.0 (0.4)	0.1 (<0.1)
	2012	3.9 (1.8)	0.4 (0.1)	0.0
	2013	1.3 (0.4)	1.0 (0.3)	<0.1 (<0.1)
	2014	0.9 (0.2)	0.6 (0.2)	0.1 (<0.1)
	2015	1.3 (0.2)	0.7 (0.2)	0.4 (0.1)
	2016	1.9 (0.3)	1.9 (0.2)	<0.1 (<0.1)
	2017	1.1 (0.2)	1.6 (0.2)	0.1 (<0.1)
	Mean	2.7 (0.6)	1.2 (0.2)	0.1 (<0.1)
	Overall	2004	1.5 (0.3)	1.1 (0.4)
2005		1.5 (0.4)	0.8 (0.1)	0.2 (0.1)
2006		6.6 (1.2)	1.2 (0.3)	<0.1 (<0.1)
2007		2.4 (0.5)	1.2 (0.4)	<0.1 (<0.1)
2008		5.9 (0.7)	1.6 (0.3)	0.1 (<0.1)
2010		4.0 (0.4)	2.6 (0.3)	<0.1 (<0.1)
2011		3.9 (0.6)	2.0 (0.4)	0.1 (<0.1)
2012		3.0 (0.8)	1.6 (0.6)	<0.1 (<0.1)
2013		1.2 (0.2)	1.1 (0.1)	0.1 (<0.1)
2014		1.3 (0.1)	1.0 (0.1)	0.2 (0.1)
2015		1.6 (0.2)	1.2 (0.1)	0.3 (0.1)
2016		2.8 (0.2)	2.1 (0.2)	0.1 (<0.1)
2017		2.0 (0.2)	1.8 (0.1)	<0.1 (<0.1)
Mean		2.9 (0.5)	1.5 (0.1)	0.1 (<0.1)

Table 3. Length frequency, CPUE (fish/line), and % trophy of blue catfish, channel catfish, and flathead catfish collected during trotline surveys on Ohio River in 2017. Standard errors are in parentheses.

Section	Pool	Species	Inch class																																									Total	CPUE	% trophy
			9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43									
Upper	Meldahl	Blue catfish							2	1	5	4	7	9	6	9	5	4	2	3	3	2	1		2		4						1		1	2	73	2.1 (0.3)	11.0							
		Channel catfish			1			4	5	10	9	4	8	7	4		1	1																				54	1.5 (0.2)	0.0						
		Flathead catfish																										1										1	<0.1 (<0.1)	0.0						
	Cannelton	Blue catfish					2	3	4	5	4	7	7	6	8	7	6	3	10	12	7	9	2	2	5	1		2	1								2	115	3.3 (0.3)	0.0						
		Channel catfish			5	2	9	17	11	8	6	9	5	2	2				1																				77	2.2 (0.3)	0.0					
		Flathead catfish																		1																		1	<0.1 (<0.1)	0.0						
	Total	Blue catfish					2	3	4	7	5	12	11	13	17	13	15	8	14	14	10	12	4	3	5	3		6	1				1		1	4	188	2.7 (0.2)	6.9							
		Channel catfish			1	5	2	13	22	21	17	10	17	12	6	2	1	1	1																				131	1.9 (0.2)	0.0					
		Flathead catfish																			1								1									2	<0.1 (<0.1)	0.0						
Trophy permit	JT Meyers	Blue catfish							2	2	1		2	5	4	2	1	8	2	1	1	2	2		3												38	1.2 (0.3)	0.0							
		Channel catfish	1				1	1	6	4	4	11	6	8	7	4	1	3																				57	1.8 (0.2)	0.0						
		Flathead catfish									1		1																									2	0.1 (<0.1)	0.0						
	Smithland	Blue catfish			1		1					2	2	2	3	1	2	3	1	2	1	3		1														25	1.0 (0.3)	0.0						
		Channel catfish					2	1	2	3	3	7	2	4	3	2	2	1	2							1												35	1.4 (0.3)	2.9						
		Flathead catfish																								1												1	<0.1 (<0.1)	0.0						
	Total	Blue catfish			1		1			2	2	3	2	4	8	5	4	4	9	4	2	4	2	3		3												63	1.1 (0.2)	0.0						
		Channel catfish	1				3	2	8	7	7	18	8	12	10	6	3	4	2						1													92	1.6 (0.2)	1.1						
		Flathead catfish									1		1												1													3	0.1 (<0.1)	0.0						
Overall	Total	Blue catfish			1		3	3	4	9	7	15	13	17	25	18	19	12	23	18	12	16	6	6	5	6		6	1				1		1	4	251	2.0 (0.2)	5.2							
		Channel catfish	1		1	5	5	15	30	28	24	28	25	24	16	8	4	5	3						1													223	1.8 (0.1)	0.4						
		Flathead catfish										1		1								1	1															5	<0.1 (<0.1)	0.0						

Table 4. CPUE (fish/line) by size group of blue catfish collected during trotline surveys on the Ohio River from 2004 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)					Total	
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0		
Upper	2005	0.0	0.0	0.0	0.0	0.0	0.0	
	2010	0.0	0.2 (<0.1)	1.9 (0.3)	1.1 (0.3)	0.7 (0.2)	4.0 (0.4)	
	2012	0.1 (<0.1)	0.1 (0.1)	1.4 (0.6)	0.4 (0.2)	0.2 (0.1)	2.3 (0.6)	
	2013	<0.1 (<0.1)	0.2 (0.1)	0.6 (0.3)	0.1 (0.1)	<0.1 (<0.1)	1.0 (0.5)	
	2014	<0.1 (<0.1)	0.6 (0.3)	0.7 (0.4)	0.4 (0.1)	0.2 (0.1)	1.9 (0.4)	
	2015	<0.1 (<0.1)	0.6 (0.2)	0.7 (0.4)	0.4 (0.2)	0.2 (0.1)	1.9 (0.3)	
	2016	<0.1 (<0.1)	0.9 (0.4)	1.9 (0.3)	0.6 (0.2)	0.1 (<0.1)	3.6 (0.3)	
	2017	0.0	0.5 (0.1)	1.8 (0.2)	0.2 (0.1)	0.2 (0.1)	2.7 (0.2)	
	Mean	<0.1 (<0.1)	0.4 (0.1)	1.1 (0.3)	0.4 (0.1)	0.2 (0.1)	2.2 (0.5)	
Trophy permit	2004	0.0	0.3 (0.2)	0.9 (0.2)	0.3 (0.2)	0.1 (0.1)	1.5 (0.3)	
	2005	0.0	<0.1 (<0.1)	1.3 (0.5)	0.3 (0.2)	0.2 (0.1)	1.8 (0.4)	
	2006	<0.1 (<0.1)	0.8 (0.2)	5.0 (1.0)	0.6 (0.2)	0.2 (0.1)	6.6 (1.2)	
	2007	0.0	0.3 (0.1)	1.5 (0.4)	0.5 (0.2)	0.1 (<0.1)	2.4 (0.5)	
	2008	0.0	0.6 (0.2)	4.1 (0.8)	1.0 (0.1)	0.1 (0.1)	5.9 (0.7)	
	2011	0.0	0.2 (0.1)	2.7 (0.5)	0.9 (0.3)	0.3 (0.1)	3.9 (0.6)	
	2012	<0.1 (<0.1)	1.6 (0.8)	2.0 (0.9)	0.2 (0.2)	0.1 (0.1)	3.9 (1.8)	
	2013	0.2 (0.1)	0.4 (0.1)	0.6 (0.2)	0.1 (0.1)	<0.1 (<0.1)	1.3 (0.4)	
	2014	0.0	0.4 (0.2)	0.3 (0.2)	0.1 (0.1)	<0.1 (<0.1)	0.9 (0.2)	
	2015	0.0	0.3 (0.2)	0.7 (0.5)	0.2 (0.2)	0.1 (<0.1)	1.3 (0.2)	
	2016	0.0	0.5 (0.2)	1.0 (0.6)	0.3 (0.1)	0.1 (<0.1)	1.9 (0.3)	
	2017	0.0	0.2 (0.2)	0.8 (0.2)	0.1 (0.1)	0.0	1.1 (0.2)	
		Mean	<0.1 (<0.1)	0.5 (0.1)	1.7 (0.4)	0.4 (0.1)	0.1 (<0.1)	2.7 (0.6)
	Overall	2004	0.0	0.3 (0.2)	0.9 (0.2)	0.3 (0.2)	0.1 (0.1)	1.5 (0.3)
2005		0.0	<0.1 (<0.1)	1.0 (0.6)	0.2 (0.1)	0.2 (0.1)	1.5 (0.4)	
2006		<0.1 (<0.1)	0.8 (0.2)	5.0 (1.0)	0.6 (0.2)	0.2 (0.1)	6.6 (1.2)	
2007		0.0	0.3 (0.1)	1.5 (0.4)	0.5 (0.2)	0.1 (<0.1)	2.4 (0.5)	
2008		0.0	0.6 (0.2)	4.1 (0.8)	1.0 (0.1)	0.1 (0.1)	5.9 (0.7)	
2010		0.0	0.2 (<0.1)	1.9 (0.3)	1.1 (0.3)	0.7 (0.2)	4.0 (0.4)	
2011		0.0	0.2 (0.1)	2.7 (0.5)	0.9 (0.3)	0.3 (0.1)	3.9 (0.6)	
2012		0.1 (<0.1)	0.7 (0.3)	1.7 (0.3)	0.3 (0.2)	0.2 (0.1)	3.0 (0.8)	
2013		0.1 (<0.1)	0.3 (0.1)	0.6 (0.1)	0.1 (<0.1)	<0.1 (<0.1)	1.2 (0.2)	
2014		<0.1 (<0.1)	0.5 (0.1)	0.5 (0.1)	0.2 (<0.1)	0.1 (0.1)	1.3 (0.1)	
2015		<0.1 (<0.1)	0.5 (0.2)	0.7 (0.2)	0.3 (0.1)	0.1 (<0.1)	1.6 (0.2)	
2016		<0.1 (<0.1)	0.7 (0.2)	1.5 (0.4)	0.5 (0.2)	0.1 (<0.1)	2.8 (0.2)	
2017		0.0	0.3 (0.1)	1.4 (0.1)	0.2 (<0.1)	0.1 (<0.1)	2.0 (0.2)	
		Mean	<0.1 (<0.1)	0.4 (0.1)	1.8 (0.4)	0.5 (0.1)	0.2 (<0.1)	2.9 (0.5)

Table 5. CPUE (fish/line) by size group of channel catfish collected during trotline surveys on the Ohio River from 2004 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)				Total	
		<12.0	12.0 - 19.9	20.0 - 27.9	≥28.0		
Upper	2005	0.0	0.6 (0.2)	1.3 (0.4)	0.0	1.9 (0.4)	
	2010	0.0	0.7 (0.2)	1.9 (0.4)	<0.1 (<0.1)	2.6 (0.3)	
	2012	0.0	1.2 (0.3)	1.1 (0.4)	0.0	2.3 (0.8)	
	2013	0.0	0.8 (0.4)	0.4 (0.2)	0.0	1.3 (0.3)	
	2014	0.0	0.9 (0.4)	0.5 (0.2)	0.0	1.4 (0.2)	
	2015	<0.1 (<0.1)	0.9 (0.4)	0.7 (0.3)	0.0	1.6 (0.3)	
	2016	0.0	1.3 (0.3)	0.8 (0.2)	<0.1 (<0.1)	2.2 (0.2)	
	2017	0.0	1.3 (0.2)	0.6 (0.1)	0.0	1.9 (0.2)	
	Mean	<0.1 (<0.1)	1.0 (0.1)	0.9 (0.2)	<0.1 (<0.1)	1.9 (0.2)	
Trophy permit	2004	0.0	0.7 (0.4)	0.4 (0.2)	0.0	1.1 (0.4)	
	2005	0.0	0.3 (0.1)	0.1 (0.1)	0.0	0.5 (0.1)	
	2006	0.0	0.7 (0.2)	0.6 (0.2)	0.0	1.2 (0.3)	
	2007	0.0	0.6 (0.2)	0.6 (0.2)	0.0	1.2 (0.4)	
	2008	0.0	0.9 (0.2)	0.6 (0.2)	0.1 (<0.1)	1.6 (0.3)	
	2011	0.0	1.2 (0.3)	0.8 (0.3)	0.0	2.0 (0.4)	
	2012	0.0	0.2 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.4 (0.1)	
	2013	<0.1 (<0.1)	0.5 (0.3)	0.4 (0.2)	0.0	1.0 (0.3)	
	2014	<0.1 (<0.1)	0.2 (0.1)	0.3 (0.1)	0.0	0.6 (0.2)	
	2015	0.0	0.3 (0.2)	0.3 (0.2)	0.0	0.7 (0.2)	
	2016	0.0	1.0 (0.4)	0.9 (0.2)	<0.1 (<0.1)	1.9 (0.2)	
	2017	<0.1 (0.1)	0.8 (0.1)	0.8 (0.2)	<0.1 (<0.1)	1.6 (0.2)	
		Mean	<0.1 (<0.1)	0.6 (0.1)	0.5 (0.1)	<0.1 (<0.1)	1.2 (0.2)
	Overall	2004	0.0	0.7 (0.4)	0.4 (0.2)	0.0	1.1 (0.4)
2005		0.0	0.4 (0.3)	0.4 (0.2)	0.0	0.8 (0.1)	
2006		0.0	0.7 (0.2)	0.6 (0.2)	0.0	1.2 (0.3)	
2007		0.0	0.6 (0.2)	0.6 (0.2)	0.0	1.2 (0.4)	
2008		0.0	0.9 (0.2)	0.6 (0.2)	0.1 (<0.1)	1.6 (0.3)	
2010		0.0	0.7 (0.2)	1.9 (0.4)	<0.1 (<0.1)	2.6 (0.3)	
2011		0.0	1.2 (0.3)	0.8 (0.3)	0.0	2.0 (0.4)	
2012		0.0	0.8 (0.2)	0.7 (0.2)	<0.1 (<0.1)	1.6 (0.6)	
2013		<0.1 (<0.1)	0.7 (0.1)	0.4 (0.1)	0.0	1.1 (0.1)	
2014		<0.1 (<0.1)	0.6 (0.2)	0.4 (0.1)	0.0	1.0 (0.1)	
2015		<0.1 (<0.1)	0.7 (0.2)	0.5 (0.1)	0.0	1.2 (0.1)	
2016		0.0	1.2 (0.4)	0.9 (0.2)	<0.1 (<0.1)	2.1 (0.2)	
2017		<0.1 (<0.1)	1.1 (0.1)	0.7 (0.1)	<0.1 (<0.1)	1.8 (0.1)	
		Mean	<0.1 (<0.1)	0.8 (0.1)	0.7 (0.1)	<0.1 (<0.1)	1.5 (0.1)

Table 6. CPUE (fish/line) by size group of flathead catfish collected during trotline surveys on the Ohio River from 2004 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2005	0.0	0.0	0.4 (0.2)	0.3 (0.3)	0.0	0.6 (0.3)
	2010	0.0	0.0	<0.1 (<0.1)	0.0	<0.1 (<0.1)	<0.1 (<0.1)
	2012	0.0	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.0	0.1 (<0.1)
	2013	0.0	<0.1 (<0.1)	<0.1 (<0.1)	0.0	0.0	0.1 (<0.1)
	2014	0.0	0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	0.0	0.3 (0.1)
	2015	0.0	0.1 (<0.1)	0.1 (0.1)	0.0	0.0	0.2 (0.1)
	2016	0.0	<0.1 (<0.1)	0.1 (<0.1)	0.0	<0.1 (<0.1)	0.1 (<0.1)
	2017	0.0	0.0	<0.1 (<0.1)	<0.1 (<0.1)	0.0	<0.1 (<0.1)
Mean	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)	
Trophy permit	2004	0.0	0.1 (0.1)	0.0	0.0	0.0	0.1 (0.1)
	2005	0.0	0.0	0.1 (<0.1)	0.0	0.1 (0.1)	0.1 (0.1)
	2006	0.0	<0.1 (<0.1)	0.0	0.0	0.0	<0.1 (<0.1)
	2007	0.0	<0.1 (<0.1)	0.0	0.0	0.0	<0.1 (<0.1)
	2008	0.0	0.0	0.1 (<0.1)	0.0	0.0	0.1 (<0.1)
	2011	0.0	0.0	0.0	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)
	2012	0.0	0.0	0.0	0.0	0.0	0.0
	2013	0.0	<0.1 (<0.1)	<0.1 (<0.1)	0.0	0.0	<0.1 (<0.1)
	2014	0.0	<0.1 (<0.1)	<0.1 (<0.1)	0.0	<0.1 (<0.1)	0.1 (<0.1)
	2015	0.0	0.2 (0.1)	0.2 (0.1)	0.0	0.0	0.4 (0.1)
	2016	0.0	0.0	<0.1 (<0.1)	0.0	0.0	<0.1 (<0.1)
	2017	0.0	<0.1 (<0.1)	<0.1 (<0.1)	0.0	0.0	<0.1 (<0.1)
	Mean	0.0	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)
	Overall	2004	0.0	0.1 (0.1)	0.0	0.0	0.0
2005		0.0	0.0	0.1 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.2 (0.1)
2006		0.0	<0.1 (<0.1)	0.0	0.0	0.0	<0.1 (<0.1)
2007		0.0	<0.1 (<0.1)	0.0	0.0	0.0	<0.1 (<0.1)
2008		0.0	0.0	0.1 (<0.1)	0.0	0.0	0.1 (<0.1)
2010		0.0	0.0	<0.1 (<0.1)	0.0	<0.1 (<0.1)	<0.1 (<0.1)
2011		0.0	0.0	0.0	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)
2012		0.0	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.0	<0.1 (<0.1)
2013		0.0	<0.1 (<0.1)	<0.1 (<0.1)	0.0	0.0	0.1 (<0.1)
2014		0.0	0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
2015		0.0	0.1 (<0.1)	0.2 (0.1)	0.0	0.0	0.3 (0.1)
2016		0.0	<0.1 (<0.1)	<0.1 (<0.1)	0.0	<0.1 (<0.1)	0.1 (<0.1)
2017		0.0	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.0	<0.1 (<0.1)
Mean		0.0	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)



Table 10. CPUE (fish/net-night) of blue catfish and flathead catfish collected during commercial hoopnet ride-alongs on the Ohio River from 2013 - 2017. Standard errors are in parentheses.

Section	Year	Species	
		Blue catfish	Flathead catfish
Upper	2013	0.6 (0.2)	2.9 (0.5)
	2014	0.4 (0.2)	0.8 (0.3)
	2017	<0.1 (<0.1)	1.0 (0.4)
	Mean	0.4 (0.2)	1.6 (0.4)
Trophy permit	2013	1.0 (0.2)	2.0 (1.1)
	2014	1.2 (0.2)	0.8 (0.1)
	2015	0.6 (0.3)	0.7 (0.3)
	2017	0.3 (0.2)	1.3 (0.5)
	Mean	0.8 (0.2)	1.2 (0.3)
Overall	2013	0.7 (0.2)	2.6 (0.3)
	2014	0.8 (0.6)	0.8 (0.1)
	2015	0.6 (0.3)	0.7 (0.3)
	2017	0.1 (<0.1)	1.1 (0.4)
	Mean	0.6 (0.2)	1.3 (0.3)

Table 11. Length frequency, CPUE (fish/net-night), and % trophy of blue catfish and flathead catfish sampled during commercial hoopnet ride-alongs in the McAlpine and JT Meyers pools of the Ohio River in 2017. Standard errors are in parentheses.

Section	Pool	Species	Inch class																				Total	CPUE	% trophy												
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34				35	36	37	38	39	40	41	42				
Upper	McAlpine	Blue catfish				1			1	1									1	1															5	<0.1 (<0.1)	20.0
		Flathead catfish	1	5	4	9	8	6	7	8	12	7	9	6	6	4	3	7	5	2	8	4	3	2	1	1							1	129	1.0 (0.4)	9.3	
Trophy permit	JT Meyers	Blue catfish				1		1		2	1	4	2	1	1		3						1	1											18	0.3 (0.2)	11.1
		Flathead catfish	4	2	4	6	4	9	5	5	5	4	1	6	4	1	1	3	1	4	1	2	1	1			1	1							76	1.3 (0.5)	7.9
Overall	Total	Blue catfish				2		1	1	3	1	4	2	1	1		3			1	1	1	1											23	0.1 (<0.1)	13.0	
		Flathead catfish	1	4	7	8	15	12	15	12	13	17	11	10	12	10	5	4	10	6	6	9	6	4	3	1	2	1					1	205	1.1 (0.4)	8.8	

Table 12. CPUE (fish/net-night) by size group of blue catfish collected during commercial hoopnet ride-alongs on the Ohio River from 2013 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2013	0.0	0.0	0.4 (0.3)	0.1 (<0.1)	0.1 (<0.1)	0.6 (0.2)
	2014	<0.1 (<0.1)	0.3 (0.2)	0.0	<0.1 (<0.1)	0.0	0.4 (0.2)
	2017	0.0	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)
	Mean	<0.1 (<0.1)	0.1 (0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.2)
Trophy permit	2013	0.1 (<0.1)	0.1 (<0.1)	0.6 (0.4)	0.2 (<0.1)	0.1 (<0.1)	1.0 (0.2)
	2014	<0.1 (<0.1)	0.2 (0.1)	0.7 (0.3)	0.2 (<0.1)	0.1 (<0.1)	1.2 (0.2)
	2015	0.0	<0.1 (<0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.6 (0.3)
	2017	0.0	<0.1 (<0.1)	0.3 (0.2)	0.0	<0.1 (<0.1)	0.3 (0.2)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.5 (0.1)	0.1 (<0.1)	0.1 (<0.1)	0.8 (0.2)
Overall	2013	<0.1 (<0.1)	<0.1 (<0.1)	0.4 (0.3)	0.2 (<0.1)	0.1 (<0.1)	0.7 (0.2)
	2014	<0.1 (<0.1)	0.3 (0.2)	0.4 (0.2)	0.1 (0.1)	<0.1 (0.1)	0.8 (0.6)
	2015	0.0	<0.1 (<0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.6 (0.3)
	2017	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.3 (0.1)	0.1 (<0.1)	<0.1 (<0.1)	0.6 (0.2)

Table 13. CPUE (fish/net-night) by size group of flathead catfish collected during commercial hoopnet ride-alongs on the Ohio River from 2013 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2013	0.0	0.3 (0.1)	1.7 (0.6)	0.5 (0.3)	0.4 (0.1)	2.9 (0.5)
	2014	0.0	0.3 (0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.8 (0.3)
	2017	0.0	0.1 (<0.1)	0.6 (0.2)	0.2 (0.1)	0.1 (0.1)	1.0 (0.4)
	Mean	0.0	0.2 (0.1)	0.9 (0.4)	0.3 (0.1)	0.2 (0.1)	1.6 (0.7)
Trophy permit	2013	0.0	1.0 (0.3)	0.8 (0.5)	0.1 (0.1)	<0.1 (<0.1)	2.0 (1.1)
	2014	0.0	0.2 (0.1)	0.5 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.8 (0.1)
	2015	<0.1 (<0.1)	0.2 (<0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.7 (0.3)
	2017	0.0	0.3 (0.1)	0.7 (0.2)	0.2 (0.1)	0.1 (<0.1)	1.3 (0.5)
	Mean	<0.1 (<0.1)	0.4 (0.2)	0.6 (0.1)	0.1 (<0.1)	<0.1 (<0.1)	1.2 (0.3)
Overall	2013	0.0	0.5 (0.3)	1.5 (0.6)	0.4 (0.3)	0.3 (0.1)	2.6 (0.3)
	2014	0.0	0.2 (0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.8 (0.1)
	2015	<0.1 (<0.1)	0.2 (<0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.7 (0.3)
	2017	0.0	0.2 (0.1)	0.6 (0.3)	0.2 (<0.1)	0.1 (<0.1)	1.1 (0.4)
	Mean	<0.1 (<0.1)	0.3 (0.1)	0.7 (0.3)	0.2 (0.1)	0.1 (<0.1)	1.3 (0.4)

Table 14. CPUE (fish/net-night) of blue catfish, channel catfish, and flathead catfish during baited hoopnet surveys in Meldahl, Cannelton, and Smithland pools of the Ohio River in 2017. Standard errors are in parentheses.

Section	Pool	No. of hoopnets	Effort (net nights)	No. of	CPUE	No. of	CPUE	No. of	CPUE
				Blue Catfish		Channel Catfish		Flathead Catfish	
Upper	Meldahl	53	106	24	0.2 (0.1)	852	8.0 (1.3)	28	0.3 (0.1)
	Cannelton	28	56	39	0.7 (0.4)	439	7.8 (2.1)	24	0.4 (0.1)
	Total	81	162	63		1291		52	
	Mean				0.4 (0.2)		8.0 (1.1)		0.3 (<0.1)
Trophy permit	Smithland	15	30	1	<0.1 (<0.1)	59	2.0 (0.5)	4	0.1 (<0.1)
Overall	Total	96	192	64		1350		56	
	Mean				0.3 (0.2)		7.0 (1.0)		0.3 (<0.1)

Table 15. CPUE (fish/net-night) of blue catfish, channel catfish, and flathead catfish collected during baited hoopnet surveys on the Ohio River in 2017. Standard errors are in parentheses.

Section	Year	Species		
		Blue catfish	Channel catfish	Flathead catfish
Upper	2017	0.4 (0.2)	8.0 (1.1)	0.3 (<0.1)
Trophy permit	2017	<0.1 (<0.1)	2.0 (0.5)	0.1 (<0.1)
Overall	2017	0.3 (0.2)	7.0 (1.0)	0.3 (<0.1)

Table 16. Length frequency, CPUE (fish/net/night), and % trophy of blue catfish, channel catfish, and flathead catfish sampled during baited hoopnet sampling in the Meldahl, Cannelton, and Smithland pools during 2017 on the Ohio River. Standard errors are in parentheses.

Section	Pool	Species	Inch class																																									Total	CPUE	% trophy									
			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43													
Upper	Meldahl	Blue catfish		1	1		1	6	4	7	3								1																									24	0.2 (0.1)	0.0									
		Channel catfish	1				16	57	43	43	35	31	45	85	95	99	78	49	50	38	31	20	15	13	5	1		2																			852	8.0 (1.3)	0.2						
		Flathead catfish									1	1	1		3	2		2	2	1	5	2	2		1	1		1																		1	28	0.3 (0.1)	10.7						
	Cannelton	Blue catfish							3			1	1					4	4	4	2	3	1	1	1	6		4	4																				39	0.7 (0.4)	0.0				
		Channel catfish				1	6	25	29	34	35	47	74	58	59	30	13	4	9	7	4	2	2																											439	7.8 (2.1)	0.0			
		Flathead catfish												1		2	3	2	5	2	4	2					1	1		1																			24	0.4 (0.1)	0.0				
	Total	Blue catfish		1	1		1	9	4	7	4	1					4	4	4	2	4	1	1	1	6		4	4																						63	0.4 (0.2)	0.0			
		Channel catfish	1			1	22	82	72	77	70	78	119	143	154	129	91	53	59	45	35	22	17	13	5	1		2																						1291	8.0 (1.1)	0.2			
		Flathead catfish										1	1	1		4	2	2	5	4	6	7	6	4		1	2	1	1	1																				1	52	0.3 (<0.1)	5.8		
Trophy permit	Smithland	Blue catfish			1																																													1	<0.1 (<0.1)	0.0			
		Channel catfish					7	9	8	4	9	4	3	3	3	1	2	4	1	1																																59	2.0 (0.5)	0.0	
		Flathead catfish											1					1	1	1																																4	0.1 (<0.1)	0.0	
Overall	Total	Blue catfish		1	2		1	9	4	7	4	1				4	4	4	2	4	1	1	1	6		4	4																										64	0.3 (0.2)	0.0
		Channel catfish	1			1	29	91	80	81	79	82	122	146	157	130	93	57	60	46	35	22	17	13	5	1		2																									1350	7.0 (1.0)	0.1
		Flathead catfish										1	1	1	1	4	2	3	6	4	7	7	6	4		1	2	1	1	1																							1	56	0.3 (<0.1)

Table 17. CPUE (fish/net-night) by size group of blue catfish collected during baited hoopnet surveys on the Ohio River in 2017. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2017	0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	0.0	0.0	0.4 (0.2)
Trophy permit	2017	<0.1 (<0.1)	0.0	0.0	0.0	0.0	<0.1 (<0.1)
Overall	2017	0.1 (<0.1)	0.1 (<0.1)	0.1 (<0.1)	0.0	0.0	0.3 (0.2)

Table 18. CPUE (fish/net-night) by size group of channel catfish collected during baited hoopnet surveys on the Ohio River in 2017. Standard errors are in parentheses.

Section	Year	Size group (in)				Total
		<12.0	12.0 - 19.9	20.0 - 27.9	≥28.0	
Upper	2017	1.6 (0.3)	5.2 (0.8)	1.2 (0.2)	<0.1 (<0.1)	8.0 (1.1)
Trophy permit	2017	0.9 (0.2)	1.0 (0.3)	0.1 (0.1)	0.0	2.0 (0.5)
Overall	2017	1.5 (0.3)	4.5 (0.7)	1.0 (0.2)	<0.1 (<0.1)	7.0 (1.0)

Table 19. CPUE (fish/net-night) by size group of flathead catfish collected during baited hoopnet surveys on the Ohio River in 2017. Standard errors are in parentheses.

Section	Year	Size group (in)				Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	
Upper	2017	<0.1 (<0.1)	0.1 (<0.1)	0.2 (<0.1)	0.0	<0.1 (<0.1)
Trophy permit	2017	0.0	0.1 (<0.1)	<0.1 (<0.1)	0.0	0.1 (<0.1)
Overall	2017	<0.1 (<0.1)	0.1 (<0.1)	0.2 (<0.1)	0.0	<0.1 (<0.1)

Table 20. Effort and CPUE (fish/hr) of blue catfish, channel catfish, and flathead catfish collected during electrofishing surveys on the Ohio River in June 2017. Standard errors are in parentheses.

Section	Pool	No. of transects	Effort (hr)	No. of Blue Catfish		No. of Channel Catfish		No. of Flathead	
				No. of Blue Catfish	CPUE	No. of Channel Catfish	CPUE	No. of Flathead	CPUE
Upper	Meldhal	20	5.0	60	12.0 (3.2)	45	9.0 (2.1)	259	51.8 (5.2)
	Markland	20	5.0	98	19.6 (7.4)	33	6.6 (1.2)	116	23.2 (3.6)
	Cannelton	20	5.0	147	29.4 (5.7)	29	5.8 (1.6)	216	43.2 (4.2)
	Total	60	15.0	305		107		591	
	Mean					20.3 (3.4)		7.1 (1.0)	
Trophy permit	Newburgh	20	5.0	170	34.0 (7.6)	33	6.6 (1.0)	231	46.2 (5.0)
	JT Meyers	20	5.0	90	18.0 (4.0)	18	3.6 (0.8)	218	43.6 (6.1)
	Smithland	20	5.0	191	38.2 (8.9)	29	5.8 (1.1)	177	35.4 (3.8)
	Total	60	15.0	451		80		626	
	Mean					30.1 (4.2)		5.3 (0.6)	
Overall	Total	120	30.0	756		187		1217	
	Mean				25.2 (2.7)		6.2 (0.6)		40.6 (2.1)

Table 21. CPUE (fish/hr) of blue catfish, channel catfish, and flathead catfish collected during electrofishing surveys on the Ohio River from 2004 - 2017. Standard errors are in parentheses.

Section	Year	Species		
		Blue catfish	Channel catfish	Flathead catfish
Upper	2009	0.9 (0.8)	2.0 (1.2)	7.8 (3.8)
	2010	11.9 (4.0)	8.8 (2.7)	17.1 (3.3)
	2013	2.0 (0.9)	17.0 (3.6)	46.2 (5.8)
	2014	15.5 (4.7)	9.2 (1.0)	28.5 (2.8)
	2015	10.6 (3.3)	9.8 (1.5)	40.9 (5.7)
	2016	8.9 (2.4)	10.0 (1.4)	37.0 (3.2)
	2017	20.3 (3.4)	7.1 (1.0)	39.4 (2.9)
	Mean	10.0 (2.6)	9.1 (1.7)	31.0 (5.3)
Trophy permit	2004	0.0	4.5 (1.6)	14.5 (4.1)
	2009	4.6 (3.2)	0.8 (0.8)	48.5 (16.8)
	2013	42.7 (14.1)	61.3 (19.7)	14.7 (2.9)
	2014	23.7 (4.0)	8.3 (1.4)	37.9 (4.6)
	2015	28.6 (7.1)	8.9 (2.0)	33.6 (4.0)
	2016	26.2 (4.5)	2.5 (0.4)	33.9 (3.1)
	2017	30.1 (4.2)	5.3 (0.6)	41.7 (2.9)
	Mean	22.3 (5.7)	13.1 (8.1)	32.1 (4.9)
Overall	2004	0.0	4.5 (1.6)	14.5 (4.1)
	2009	1.6 (0.8)	1.9 (0.9)	15.5 (4.1)
	2010	11.9 (4.0)	8.8 (2.7)	17.1 (3.3)
	2013	11.4 (4.8)	27.2 (3.9)	38.9 (5.1)
	2014	19.3 (3.2)	8.8 (0.8)	32.8 (2.6)
	2015	19.0 (3.8)	9.4 (1.2)	37.6 (3.6)
	2016	17.5 (2.7)	6.2 (0.8)	35.5 (2.2)
	2017	25.2 (2.7)	6.2 (0.6)	40.6 (2.1)
Mean	13.2 (3.1)	9.1 (2.7)	29.1 (4.0)	



Table 23. CPUE (fish/hr) by size group of blue catfish collected during electrofishing surveys on the Ohio River from 2004 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2009	0.2 (0.2)	0.4 (0.2)	0.2 (0.2)	0.2 (0.2)	0.0	0.9 (0.2)
	2010	8.8 (2.3)	1.0 (0.1)	1.4 (0.1)	0.7 (<0.1)	0.0	11.9 (4.0)
	2013	1.0 (0.4)	1.0 (0.6)	0.0	0.0	0.0	2.0 (0.9)
	2014	7.0 (1.3)	8.1 (4.2)	0.3 (0.1)	0.2 (<0.1)	0.0	15.6 (4.7)
	2015	0.6 (0.6)	8.3 (2.4)	1.8 (0.6)	0.0	0.2 (0.1)	10.9 (3.3)
	2016	0.2 (<0.1)	6.1 (3.4)	1.9 (1.4)	0.1 (0.1)	0.6 (0.1)	8.9 (2.4)
	2017	1.3 (0.4)	11.5 (2.2)	6.7 (1.4)	0.2 (0.1)	0.5 (0.2)	20.3 (3.4)
	Mean	2.7 (1.4)	5.2 (1.7)	1.8 (0.9)	0.2 (0.1)	0.2 (0.1)	10.0 (2.6)
Trophy permit	2004	0.0	0.0	0.0	0.0	0.0	0.0
	2009	0.0	3.1 (2.7)	1.5 (0.4)	0.0	0.0	4.6 (1.6)
	2013	36.7 (11.3)	4.7 (2.0)	1.3 (1.3)	0.0	0.0	42.7 (14.1)
	2014	6.6 (1.2)	12.5 (2.1)	4.1 (1.6)	0.2 (0.1)	0.3 (0.2)	23.7 (4.0)
	2015	1.0 (0.4)	21.3 (3.8)	5.5 (1.1)	0.5 (0.2)	0.3 (0.2)	28.6 (7.1)
	2016	1.2 (0.8)	16.2 (8.7)	7.9 (2.0)	0.5 (0.1)	0.3 (0.1)	26.2 (4.5)
	2017	5.7 (1.3)	14.1 (2.7)	8.9 (1.5)	0.9 (0.3)	0.5 (0.2)	30.1 (4.2)
		Mean	7.3 (5.0)	10.3 (2.9)	4.2 (1.3)	0.3 (0.1)	0.2 (0.1)
Overall	2004	0.0	0.0	0.0	0.0	0.0	0.0
	2009	0.1 (<0.1)	1.0 (0.1)	0.4 (<0.1)	0.1 (<0.1)	0.0	1.6 (0.8)
	2010	8.8 (2.3)	1.0 (0.1)	1.4 (0.1)	0.7 (<0.1)	0.0	11.9 (4.0)
	2013	9.2 (2.5)	1.8 (0.9)	0.3 (0.1)	0.0	0.0	11.4 (4.8)
	2014	6.8 (0.6)	10.1 (1.2)	2.1 (0.2)	0.2 (0.1)	0.1 (0.1)	19.3 (3.2)
	2015	0.8 (0.4)	14.3 (3.0)	3.5 (0.5)	0.2 (<0.1)	0.2 (0.1)	19.0 (3.8)
	2016	0.7 (0.4)	11.1 (2.8)	4.9 (0.9)	0.3 (0.1)	0.5 (0.2)	17.5 (2.7)
	2017	3.5 (0.7)	12.8 (1.7)	7.8 (1.0)	0.5 (0.2)	0.5 (0.1)	25.2 (2.7)
	Mean	3.7 (1.4)	6.5 (2.2)	2.6 (1.0)	0.3 (0.1)	0.2 (0.1)	13.2 (3.1)

Table 24. CPUE (fish/hr) by size group of channel catfish collected during electrofishing surveys on the Ohio River from 2004 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)				Total
		<12.0	12.0 - 19.9	20.0 - 27.9	≥28.0	
Upper	2009	0.6 (0.2)	1.3 (0.6)	0.2 (0.2)	0.0	2.0 (0.4)
	2010	8.8 (0.4)	0.0	0.0	0.0	8.8 (2.7)
	2013	14.8 (5.3)	2.0 (0.7)	0.2 (0.2)	0.0	17.0 (3.6)
	2014	6.2 (1.5)	2.6 (0.9)	0.4 (0.2)	0.0	9.2 (1.0)
	2015	4.8 (1.9)	4.6 (1.7)	0.3 (0.3)	0.0	9.8 (1.5)
	2016	3.8 (1.6)	6.0 (1.1)	0.2 (0.1)	0.0	10.0 (1.4)
	2017	2.3 (0.5)	4.1 (0.7)	0.7 (0.2)	0.0	7.1 (1.0)
	Mean	5.9 (1.8)	2.9 (0.8)	0.3 (0.1)	0.0	9.1 (1.7)
Trophy permit	2004	0.8 (0.6)	3.8 (2.4)	0.0	0.0	4.5 (1.6)
	2009	0.8 (0.8)	0.0	0.0	0.0	0.8 (0.8)
	2013	60.7 (22.6)	0.6 (0.6)	0.0	0.0	61.3 (19.7)
	2014	4.7 (1.4)	3.0 (0.8)	0.6 (0.2)	0.0	8.3 (1.4)
	2015	5.4 (0.9)	3.1 (1.1)	0.4 (0.2)	0.0	8.9 (2.0)
	2016	1.1 (0.4)	1.1 (0.4)	0.3 (0.1)	0.0	2.5 (0.4)
	2017	2.2 (0.4)	2.8 (0.4)	0.3 (0.1)	0.0	5.3 (0.6)
	Mean	10.8 (8.3)	2.1 (0.6)	0.2 (0.1)	0.0	13.1 (8.1)
Overall	2004	0.8 (0.6)	3.8 (2.4)	0.0	0.0	4.5 (1.6)
	2009	0.6 (<0.1)	1.2 (0.2)	0.1 (<0.1)	0.0	1.9 (0.9)
	2010	8.8 (0.4)	0.0	0.0	0.0	8.8 (2.7)
	2013	25.4 (7.2)	1.7 (0.3)	0.2 (0.2)	0.0	27.2 (3.9)
	2014	5.5 (0.5)	2.8 (0.4)	0.5 (0.2)	0.0	8.8 (0.8)
	2015	5.1 (2.4)	3.9 (0.3)	0.4(0.1)	0.0	9.4 (1.2)
	2016	2.4 (0.6)	3.5 (1.0)	0.3 (0.1)	0.0	6.2 (0.8)
	2017	2.3 (0.3)	3.5 (0.4)	0.5 (0.1)	0.0	6.2 (0.6)
Mean	6.4 (2.9)	2.6 (0.5)	0.3 (0.1)	0.0	9.1 (2.7)	

Table 25. CPUE (fish/hr) by size group of flathead catfish collected during electrofishing surveys on the Ohio River from 2004 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2009	3.0 (0.8)	3.3 (0.9)	1.3 (0.4)	0.0	0.2 (0.2)	7.8 (1.2)
	2010	8.8 (1.9)	6.0 (2.1)	2.1 (0.5)	0.2 (<0.1)	0.0	17.1 (3.3)
	2013	17.8 (7.4)	20.4 (4.2)	7.6 (2.1)	0.2 (0.2)	0.2 (0.2)	46.2 (5.8)
	2014	10.8 (2.6)	14.8 (3.1)	2.6 (1.1)	0.3 (0.1)	0.0	28.5 (2.8)
	2015	17.2 (4.1)	16.6 (3.2)	5.5 (1.9)	1.0 (0.3)	0.5 (0.2)	40.9 (5.7)
	2016	12.1 (4.0)	17.1 (3.3)	6.5 (1.9)	0.7 (0.4)	0.5 (0.2)	37.0 (3.2)
	2017	11.4 (1.4)	15.1 (1.5)	10.8 (1.4)	1.2 (0.3)	0.9 (0.3)	39.4 (2.9)
	Mean	11.6 (1.9)	13.3 (2.4)	5.2 (1.3)	0.5 (0.2)	0.3 (0.1)	31.0 (5.3)
Trophy permit	2004	9.3 (4.2)	5.0 (1.1)	0.3 (0.3)	0.0	0.0	14.5 (4.1)
	2009	30.8 (12.2)	9.2 (2.8)	7.7 (3.1)	0.0	0.8 (0.8)	48.5 (7.2)
	2013	5.3 (3.2)	6.7 (1.9)	2.0 (0.5)	0.7 (0.7)	0.0	14.7 (2.9)
	2014	14.0 (3.2)	17.1 (7.1)	6.3 (2.6)	0.4 (0.4)	0.2 (0.1)	37.9 (4.6)
	2015	14.1 (2.6)	12.2 (2.6)	5.7 (2.1)	0.7 (0.3)	0.9 (0.2)	33.6 (4.0)
	2016	9.7 (2.0)	14.8 (2.5)	7.9 (3.6)	0.9 (0.5)	0.7 (0.3)	33.9 (3.1)
	2017	13.7 (1.6)	15.9 (1.3)	10.6 (1.3)	0.9 (0.3)	0.7 (0.3)	41.7 (2.9)
		Mean	13.8 (3.1)	11.6 (1.8)	5.8 (1.3)	0.5 (0.1)	0.5 (0.1)
Overall	2004	9.3 (4.2)	5.0 (1.1)	0.3 (0.3)	0.0	0.0	14.5 (4.1)
	2009	8.4 (1.7)	4.3 (0.2)	2.6 (0.2)	0.0	0.3 (<0.1)	15.5 (4.1)
	2010	8.8 (1.9)	6.0 (2.1)	2.1 (0.5)	0.2 (<0.1)	0.0	17.1 (3.3)
	2013	14.9 (4.5)	17.2 (1.1)	6.3 (1.8)	0.3 (0.1)	0.2 (0.2)	38.9 (5.1)
	2014	12.3 (2.6)	15.9 (3.7)	4.3 (0.2)	0.3 (0.1)	0.1 (<0.1)	32.8 (2.6)
	2015	15.8 (2.1)	14.6 (4.2)	5.6 (0.9)	0.9 (0.4)	0.7 (0.3)	37.6 (3.6)
	2016	10.9 (1.6)	16.0 (4.2)	7.2 (1.3)	0.8 (0.3)	0.6 (0.3)	35.5 (2.2)
	2017	12.5 (1.1)	15.5 (1.0)	10.7 (0.9)	1.1 (0.2)	0.8 (0.2)	40.6 (2.1)
	Mean	11.6 (1.0)	11.8 (2.0)	4.9 (1.2)	0.5 (0.2)	0.3 (0.1)	29.1 (4.0)

Table 26. Tournament effort and CPUE (fish/boat; standard errors are in parentheses) of blue catfish, channel catfish, and flathead catfish collected from the Ohio River in 2017.

Section	Pool	No. of tournaments	No. of boats	Blue			Channel			Flathead			Total		
				Catfish	% Trophy	CPUE	Catfish	% Trophy	CPUE	Catfish	% trophy	CPUE	Catfish	% trophy	CPUE
Upper	Markland	2	345	503	7.6	1.5 (0.1)	253	6.7	0.7 (0.1)	77	6.5	0.2 (<0.1)	833	7.2	2.4 (0.1)
	Total	2	345	503	7.6		253	6.7		77	6.5		833	7.2	
	Mean					1.5 (0.1)			0.7 (0.1)			0.2 (<0.1)			2.4 (0.1)
Trophy permit	Newburgh	2	268	321	16.2	1.2 (0.1)	69	0.0	0.3 (0.1)	49	8.2	0.2 (<0.1)	439	12.8	1.6 (0.1)
	JT Meyers	1	31	74	10.8	2.4 (0.4)	15	13.3	0.5 (0.1)	6	0.0	0.2 (0.1)	95	10.5	3.1 (0.2)
	Lower River	1	86	240	12.9	2.8 (0.2)	17	5.9	0.2 (0.1)	8	25.0	0.1 (<0.1)	265	12.8	3.1 (0.1)
	Total	4	385	635	14.3		101	3.0		63	9.5		799	12.5	
	Mean					1.6 (0.2)			0.3 (0.1)			0.2 (<0.1)			2.1 (0.1)
Overall	Total	6	730	1138	11.3		354	5.6		140	7.9		1632	9.8	
	Mean					1.6 (0.1)			0.5 (0.1)			0.2 (<0.1)			2.2 (0.1)

Table 27. CPUE (fish/boat) of blue catfish, channel catfish, flathead catfish, and total CPUE collected during catfish tournament surveys on the Ohio River from 2013 - 2017. Maximum CPUE is 5.0 fish/boat. Standard errors are in parentheses.

Section	Year	Species			Total
		Blue catfish	Channel catfish	Flathead catfish	
Upper	2013	1.1 (0.2)	1.4 (0.3)	0.3 (0.1)	2.8 (0.3)
	2014	1.0 (0.1)	1.0 (0.1)	0.4 (0.1)	2.4 (0.2)
	2015	1.4 (0.2)	0.7 (0.2)	0.2 (0.1)	2.3 (0.1)
	2016	1.6 (0.2)	0.7 (0.1)	0.2 (0.1)	2.4 (0.1)
	2017	1.5 (0.1)	0.7 (0.1)	0.2 (<0.1)	2.4 (0.1)
	Mean	1.3 (0.1)	0.9 (0.1)	0.3 (0.1)	2.5 (0.1)
Trophy permit	2013	1.8 (0.4)	0.6 (0.1)	0.1 (<0.1)	2.5 (0.2)
	2014	2.0 (0.5)	0.4 (0.1)	0.2 (0.1)	2.6 (0.3)
	2015	1.5 (0.1)	0.3 (0.1)	0.2 (0.1)	2.0 (0.1)
	2016	1.5 (0.2)	0.3 (0.1)	0.1 (0.1)	2.0 (0.1)
	2017	1.6 (0.2)	0.3 (0.1)	0.2 (<0.1)	2.1 (0.1)
	Mean	1.7 (0.2)	0.4 (0.1)	0.2 (<0.1)	2.2 (0.2)
Overall	2013	1.4 (0.4)	1.1 (0.3)	0.2 (0.1)	2.7 (0.2)
	2014	1.4 (0.5)	0.7 (0.1)	0.3 (0.1)	2.4 (0.2)
	2015	1.4 (0.1)	0.5 (0.1)	0.2 (0.1)	2.1 (0.1)
	2016	1.5 (0.1)	0.5 (<0.1)	0.1 (<0.1)	2.2 (0.1)
	2017	1.6 (0.1)	0.5 (0.1)	0.2 (<0.1)	2.2 (0.1)
	Mean	1.5 (0.1)	0.7 (0.1)	0.2 (0.1)	2.3 (0.1)

Table 28. Length frequency, CPUE (fish/boat), and % trophy of blue catfish, channel catfish, and flathead catfish collected during catfish tournaments surveys during 2017 on the Ohio River. Standard error is in parentheses.

Section	Pool	Species	Inch class																																			Total	Mean length (in)	CPUE	% trophy									
			10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44					45	46	47						
Upper	Markland	Blue catfish	1			1	6	7	14	21	34	46	46	56	39	27	19	33	26	19	25	10	14	14	7	9	7	6	1	3	5	1	1	2	3					503	25.8	1.5 (0.1)	7.6							
		Channel catfish			3	3	1	12	8	6	14	15	12	32	28	29	24	33	16	11	3	3																					253	23.2	0.7 (0.1)	6.7				
		Flathead catfish			1	1	4	4	2	2	3	4	8	7	11	6	4	2	1	4	1	2	4	1			1	1	1															77	24.8	0.2 (<0.1)	6.5			
Trophy permit	Newburgh	Blue catfish						1	4	4	6	16	25	14	21	25	22	29	25	20	23	10	9	10	5	5	9	6	5	6	5	2	2	5	3	3		1	321	28.7	1.2 (0.1)	16.2								
		Channel catfish			1	2	3	2	4	13	8	10	8	8	4	5	1																											69	21.1	0.3 (0.1)	0.0			
		Flathead catfish					1	2	3	1	2	5	6	1	3	7	2	2	4	2	1	1	2	1	1	2	1	1				1						1					49	27.2	0.2 (<0.1)	8.2				
	JT Meyers	Blue catfish										1	1	1	1		3	2	8	7	9	13	10	4	4	2	1	2	2	2	1													74	30.3	2.4 (0.4)	10.8			
		Channel catfish										1	2	1	1	1	2	3	2		2																									15	25.2	0.5 (0.1)	13.3	
		Flathead catfish											1	2	1					1																										6	26.3	0.2 (0.1)	0.0	
Lower River	Blue catfish				1			1		4	2	4	13	20	17	15	22	26	18	23	17	11	14	7	7	6	3	2	2	1	1	1						1	240	30.0	2.8 (0.2)	12.9								
	Channel catfish								2	1			1		3	2	5	2	1																											17	24.4	0.2 (0.1)	5.9	
	Flathead catfish											1		2									1	1					1																8	29.9	0.1 (<0.1)	25.0		
Total	Blue catfish				1		1	5	4	8	21	28	19	34	48	41	52	54	55	54	43	30	25	21	13	18	14	10	9	7	3	3	6	3	3	1	1							635	29.4	1.6 (0.2)	14.3			
	Channel catfish				1	2	3	4	5	13	9	12	10	9	8	9	9	4	1	2																											101	22.3	0.3 (0.1)	3.0
	Flathead catfish						1		3	3	1	2	6	9	4	3	7	3	2	4	4	2	1	2	1	1	1	1			1																63	27.5	0.2 (<0.1)	9.5
Overall	Total	Blue catfish	1			1	1	6	8	19	25	42	67	74	75	73	75	60	85	80	74	79	53	44	39	28	22	25	20	11	12	12	4	4	8	6	3	1	1	1138	27.8	1.6 (0.1)	11.3							
		Channel catfish				3	4	3	15	12	11	27	24	24	42	37	37	33	42	20	12	5	3																								354	22.9	0.5 (0.1)	5.6
		Flathead catfish				1	1	4	5	2	5	6	5	10	13	20	10	7	9	4	6	5	6	6	2	2	2	2	2			1	2														140	26	0.2 (<0.1)	7.9

Table 29. CPUE (fish/boat) by size group of blue catfish collected during catfish tournament surveys on the Ohio River from 2013 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2013	<0.1 (<0.1)	0.4 (0.1)	0.4 (0.2)	0.3 (0.1)	0.1 (<0.1)	1.1 (0.2)
	2014	<0.1 (<0.1)	0.3 (0.1)	0.3 (0.1)	0.2 (0.1)	0.1 (0.1)	1.0 (0.1)
	2015	0.0	0.3 (0.1)	0.6 (0.3)	0.4 (0.1)	0.2 (0.1)	1.4 (0.2)
	2016	0.0	0.1 (0.1)	1.0 (0.3)	0.3 (0.1)	0.1 (<0.1)	1.6 (0.2)
	2017	<0.1 (<0.1)	0.1 (<0.1)	1.0 (0.1)	0.2 (0.1)	0.1 (<0.1)	1.5 (0.1)
	Mean	<0.1 (<0.1)	0.2 (0.1)	0.7 (0.1)	0.3 (0.1)	0.1 (<0.1)	1.3 (0.1)
Trophy permit	2013	<0.1 (<0.1)	0.1 (0.1)	0.8 (0.5)	0.5 (0.4)	0.3 (0.2)	1.8 (0.4)
	2014	<0.1 (<0.1)	0.2 (0.1)	0.8 (0.5)	0.5 (0.3)	0.3 (0.1)	2.0 (0.5)
	2015	0.0	0.2 (0.1)	0.7 (0.2)	0.4 (0.1)	0.2 (0.1)	1.5 (0.1)
	2016	0.0	0.1 (<0.1)	0.8 (0.3)	0.5 (0.2)	0.2 (0.1)	1.5 (0.2)
	2017	0.0	<0.1 (<0.1)	0.9 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.6 (0.2)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.8 (0.2)	0.5 (0.1)	0.2 (0.1)	1.7 (0.1)
Overall	2013	<0.1 (<0.1)	0.3 (0.1)	0.6 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.4 (0.4)
	2014	<0.1 (<0.1)	0.3 (0.1)	0.6 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.4 (0.5)
	2015	0.0	0.3 (<0.1)	0.6 (0.2)	0.4 (0.1)	0.2 (0.1)	1.4 (0.1)
	2016	0.0	0.1 (<0.1)	0.9 (0.3)	0.4 (0.1)	0.2 (0.1)	1.5 (0.1)
	2017	<0.1 (<0.1)	0.1 (<0.1)	1.0 (0.3)	0.3 (0.1)	0.2 (0.1)	1.6 (0.1)
	Mean	<0.1 (<0.1)	0.2 (0.1)	0.7 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.5 (0.1)

Table 30. CPUE (fish/boat) by size group of channel catfish collected during catfish tournament surveys on the Ohio River from 2013 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)				Total
		<12.0	12.0 - 19.9	20.0 - 27.9	≥28.0	
Upper	2013	<0.1 (<0.1)	0.2 (0.1)	1.0 (0.3)	0.1 (<0.1)	1.4 (0.3)
	2014	<0.1 (<0.1)	0.2 (0.1)	0.7 (0.2)	0.1 (<0.1)	1.0 (0.1)
	2015	<0.1 (<0.1)	0.1 (<0.1)	0.5 (0.2)	0.1 (<0.1)	0.7 (0.2)
	2016	0.0	0.1 (<0.1)	0.5 (0.2)	0.1 (<0.1)	0.7 (0.1)
	2017	0.0	0.1 (0.1)	0.5 (0.2)	<0.1 (<0.1)	0.7 (0.1)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.6 (0.2)	0.1 (<0.1)	0.9 (0.1)
Trophy permit	2013	<0.1 (<0.1)	0.1 (0.1)	0.4 (0.2)	<0.1 (<0.1)	0.6 (0.1)
	2014	<0.1 (<0.1)	0.1 (<0.1)	0.3 (0.1)	<0.1 (<0.1)	0.4 (0.1)
	2015	0.0	0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	0.3 (0.1)
	2016	0.0	<0.1 (<0.1)	0.3 (0.1)	<0.1 (<0.1)	0.3 (0.1)
	2017	0.0	0.1 (0.1)	0.2 (0.1)	<0.1 (<0.1)	0.3 (0.1)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.3 (0.1)	<0.1 (<0.1)	0.4 (0.1)
Overall	2013	<0.1 (<0.1)	0.2 (<0.1)	0.8 (0.2)	0.1 (<0.1)	1.1 (0.3)
	2014	<0.1 (<0.1)	0.2 (0.1)	0.5 (0.1)	<0.1 (<0.1)	0.7 (0.1)
	2015	<0.1 (<0.1)	0.1 (<0.1)	0.4 (0.1)	<0.1 (<0.1)	0.5 (0.1)
	2016	0.0	0.1 (<0.1)	0.4 (0.1)	<0.1 (<0.1)	0.5 (<0.1)
	2017	0.0	0.1 (<0.1)	0.4 (0.1)	<0.1 (<0.1)	0.5 (0.1)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.5 (0.1)	<0.1 (<0.1)	0.7 (0.1)

Table 31. CPUE (fish/boat) by size group of flathead catfish collected during catfish tournament surveys on the Ohio River from 2013 - 2017. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2013	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
	2014	0.0	0.1 (<0.1)	0.3 (0.1)	0.1 (<0.1)	<0.1 (<0.1)	0.4 (0.1)
	2015	<0.1 (<0.1)	0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2016	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2017	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (<0.1)
	Mean	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
Trophy permit	2013	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)
	2014	0.0	<0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2015	0.0	<0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2016	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (0.1)
	2017	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (<0.1)
	Mean	0.0	<0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
Overall	2013	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2014	0.0	0.1 (<0.1)	0.2 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
	2015	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2016	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)
	2017	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<.1)	0.2 (<0.1)
	Mean	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (<0.1)

Table 32. Relative weight (Wr) of blue catfish, channel catfish, and flathead catfish collected from the Ohio River using trotlines, hoop nets, electrofishing and catfish tournaments from 2013 - 2017.

Year	Section								
	Upper			Trophy permit			Overall		
	Blue catfish	Channel catfish	Flathead catfish	Blue catfish	Channel catfish	Flathead catfish	Blue catfish	Channel catfish	Flathead catfish
2013	118	100	97	108	99	101	112	101	99
2014	102	93	91	106	102	95	105	97	92
2015	106	99	95	110	101	100	109	100	98
2016	107	98	100	107	96	111	107	97	106
2017	103	88	102	107	93	94	106	89	107
Mean	107	96	97	108	98	100	108	97	100

Table 33. Mean length (in) at age of capture based on otoliths taken from blue catfish from the Ohio River in spring and summer of 2017.

Section	Sex	Age																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Upper	Male	7.2	9.9	12.4	14.8	17.1	19.3	21.3	23.2	25.0	26.7	28.3	29.8	31.2	32.6	33.8	35.0	36.2	37.2	38.2	39.2
	Female	9.7	11.6	13.5	15.2	16.9	18.5	20.0	21.5	22.9	24.3	25.6	26.8	28.0	29.2	30.2	31.3	32.3	33.3	34.2	35.1
	Total	7.6	10.0	12.4	14.6	16.7	18.6	20.5	22.3	24.0	25.6	27.1	28.6	29.9	31.2	32.5	33.6	34.8	35.8	36.8	37.7
Trophy permit	Male	9.0	11.2	13.4	15.4	17.3	19.2	20.9	22.6	24.2	25.7	27.1	28.5	29.8	31.0	32.2	33.3	34.4	35.4	36.4	37.3
	Female	7.3	9.9	12.4	14.7	16.9	19.0	20.9	22.8	24.6	26.2	27.8	29.3	30.7	32.0	33.3	34.5	35.6	36.7	37.7	38.6
	Total	8.3	10.6	12.8	14.9	16.9	18.8	20.6	22.3	24.0	25.5	27.0	28.4	29.7	31.0	32.2	33.3	34.4	35.4	36.4	37.3
Overall	Male	8.7	11.1	13.3	15.4	17.4	19.4	21.2	22.9	24.5	26.1	27.5	28.9	30.3	31.5	32.7	33.9	34.9	36.0	36.9	37.9
	Female	11.9	13.4	15.0	16.4	17.8	19.2	20.5	21.7	23.0	24.1	25.3	26.3	27.4	28.4	29.4	30.3	31.2	32.1	32.9	33.7
	Total	8.0	10.4	12.6	14.7	16.7	18.6	20.4	22.2	23.8	25.4	26.8	28.2	29.6	30.9	32.1	33.2	34.3	35.3	36.3	37.2

Table 34. Mean length (in) at age of capture based on otoliths taken from channel catfish from the Ohio River in spring and summer of 2017.

Section	Sex	Age																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Upper	Male	6.6	9.1	11.5	13.6	15.6	17.3	18.9	20.4	21.7	22.9	24.0	25.0	25.9	26.7	27.5	28.2	28.8	29.3	29.9	30.3
	Female	5.7	8.7	11.5	13.9	16.1	18.1	19.8	21.4	22.8	24.1	25.2	26.3	27.2	28.0	28.7	29.4	30.0	30.5	30.9	31.4
	Total	6.4	8.9	11.1	13.2	15.0	16.8	18.3	19.8	21.1	22.3	23.4	24.4	25.3	26.1	26.9	27.6	28.2	28.8	29.3	29.8
Trophy permit	Male	7.8	9.5	11.1	12.6	14.0	15.3	16.5	17.6	18.7	19.7	20.7	21.6	22.4	23.2	23.9	24.6	25.2	25.8	26.4	26.9
	Female	8.0	9.7	11.2	12.7	14.1	15.5	16.7	17.8	18.9	19.9	20.9	21.8	22.6	23.4	24.1	24.8	25.4	26.0	26.6	27.1
	Total	7.6	9.4	11.1	12.7	14.1	15.5	16.8	18.0	19.1	20.1	21.1	22.0	22.9	23.7	24.4	25.1	25.8	26.4	26.9	27.5
Overall	Male	7.4	9.5	11.4	13.2	14.9	16.4	17.8	19.1	20.3	21.4	22.5	23.4	24.3	25.1	25.9	26.6	27.2	27.8	28.3	28.8
	Female	7.8	9.6	11.3	12.9	14.4	15.8	17.1	18.3	19.4	20.5	21.5	22.4	23.2	24.0	24.8	25.5	26.1	26.7	27.3	27.8
	Total	6.5	8.5	10.4	12.2	13.8	15.3	16.7	18.0	19.2	20.4	21.4	22.4	23.3	24.1	24.9	25.6	26.3	26.9	27.5	28.0

Table 35. Mean length (in) at age of capture based on otoliths taken from flathead catfish from the Ohio River in spring and summer of 2017.

Section	Sex	Age																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Upper	Male	9.4	11.3	13.0	14.7	16.3	17.9	19.4	20.8	22.2	23.5	24.8	26.0	27.2	28.3	29.4	30.4	31.4	32.4	33.3	34.2	35.0	35.8	36.6	37.3	38.0	38.7	39.4	40.0	40.6	41.2	41.8	42.3	42.8
	Female	11.3	13.1	14.8	16.4	18.0	19.5	20.9	22.3	23.6	24.9	26.1	27.2	28.4	29.4	30.5	31.5	32.4	33.3	34.2	35.0	35.8	36.6	37.4	38.1	38.8	39.4	40.0	40.6	41.2	41.8	42.3	42.8	43.3
	Total	11.0	12.7	14.4	16.0	17.5	19.0	20.4	21.8	23.1	24.3	25.5	26.7	27.8	28.9	29.9	30.9	31.8	32.8	33.6	34.5	35.3	36.1	36.8	37.5	38.2	38.9	39.5	40.1	40.7	41.3	41.8	42.3	42.8
Trophy permit	Male	5.7	8.3	10.8	13.1	15.3	17.4	19.4	21.3	23.1	24.7	26.3	27.8	29.3	30.6	31.9	33.1	34.3	35.4	36.4	37.4	38.3	39.2	40.1	40.9	41.6	42.3	43.0	43.6	44.2	44.8	45.3	45.9	46.3
	Female	5.2	7.8	10.4	12.8	15.0	17.2	19.2	21.1	22.9	24.7	26.3	27.8	29.3	30.7	32.0	33.2	34.4	35.5	36.6	37.5	38.5	39.4	40.2	41.0	41.8	42.5	43.2	43.8	44.4	45.0	45.5	46.0	46.5
	Total	5.6	8.2	10.7	13.0	15.2	17.3	19.3	21.2	23.0	24.7	26.3	27.8	29.2	30.6	31.9	33.1	34.2	35.3	36.4	37.4	38.3	39.2	40.0	40.8	41.6	42.3	43.0	43.6	44.2	44.8	45.3	45.8	46.3
Overall	Male	8.8	10.7	12.6	14.3	16.0	17.6	19.2	20.6	22.0	23.4	24.7	26.0	27.2	28.3	29.4	30.5	31.5	32.5	33.4	34.3	35.1	36.0	36.8	37.5	38.2	38.9	39.6	40.2	40.8	41.4	42.0	42.5	43.0
	Female	9.3	11.3	13.2	15.0	16.7	18.3	19.9	21.4	22.9	24.3	25.6	26.9	28.1	29.3	30.4	31.4	32.5	33.4	34.4	35.3	36.1	36.9	37.7	38.5	39.2	39.9	40.5	41.2	41.8	42.3	42.9	43.4	43.9
	Total	7.6	9.6	11.6	13.6	15.4	17.1	18.8	20.4	21.9	23.4	24.8	26.1	27.4	28.6	29.8	30.9	32.0	33.0	34.0	34.9	35.8	36.6	37.4	38.2	39.0	39.7	40.4	41.0	41.6	42.2	42.8	43.3	43.8

Table 36. Ranges of total annual mortality rates of blue catfish, channel catfish, and flathead catfish collected from the Ohio River using trotlines, hoopnets, and elctrofishing from 2013 - 2017.

Section	Year	Blue catfish		Channel catfish		Flathead	
		Low	High	Low	High	Low	High
Upper	2013	3.8	14.7	19.8	24.2	9.1	18.8
	2014	7.7	29.1	22.8	28.3	9.5	20.1
	2015	5.1	22.1	14.6	21.7	14.8	17.0
	2016	13.8	14.2	18.0	18.0	12.8	18.0
	2017	10.4	12.4	21.0	26.9	14.8	18.2
	Mean	8.2	18.5	19.2	23.8	12.2	18.4
Trophy permit	2013	14.1	22.0	14.2	52.8	15.4	17.8
	2014	12.6	21.5	10.9	26.6	12.4	17.5
	2015	7.9	17.9	9.2	15.3	12.7	14.7
	2016	17.0	18.6	15.9	15.9	14.5	14.9
	2017	18.5	19.1	18.0	24.5	14.8	17.7
	Mean	14.0	19.8	13.6	27.0	14.0	16.5
Overall	2013	13.8	18.7	16.8	32.2	10.3	18.8
	2014	10.5	24.7	21.7	26.8	11.5	18.7
	2015	6.7	20.0	14.6	20.6	13.6	15.9
	2016	16.0	17.4	16.8	16.8	14.5	16.0
	2017	17.4	18.9	20.8	27.9	15.4	18.2
	Mean	12.9	19.9	18.1	24.9	13.1	17.5

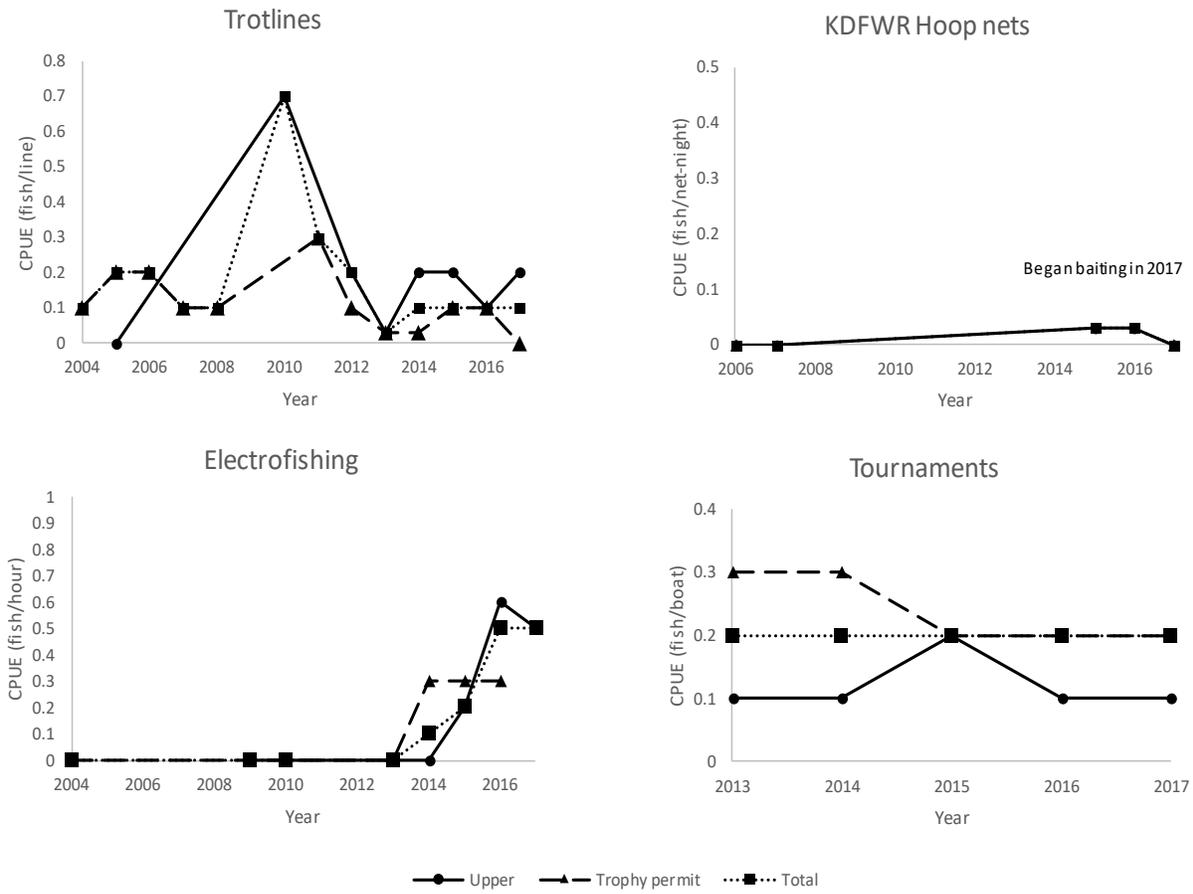


Figure 1. CPUE of trophy blue catfish ( $\geq 35.0$  in) using trotlines, KDFWR hoop nets, electrofishing, and catfish tournaments on the Ohio River from 2004-2017.

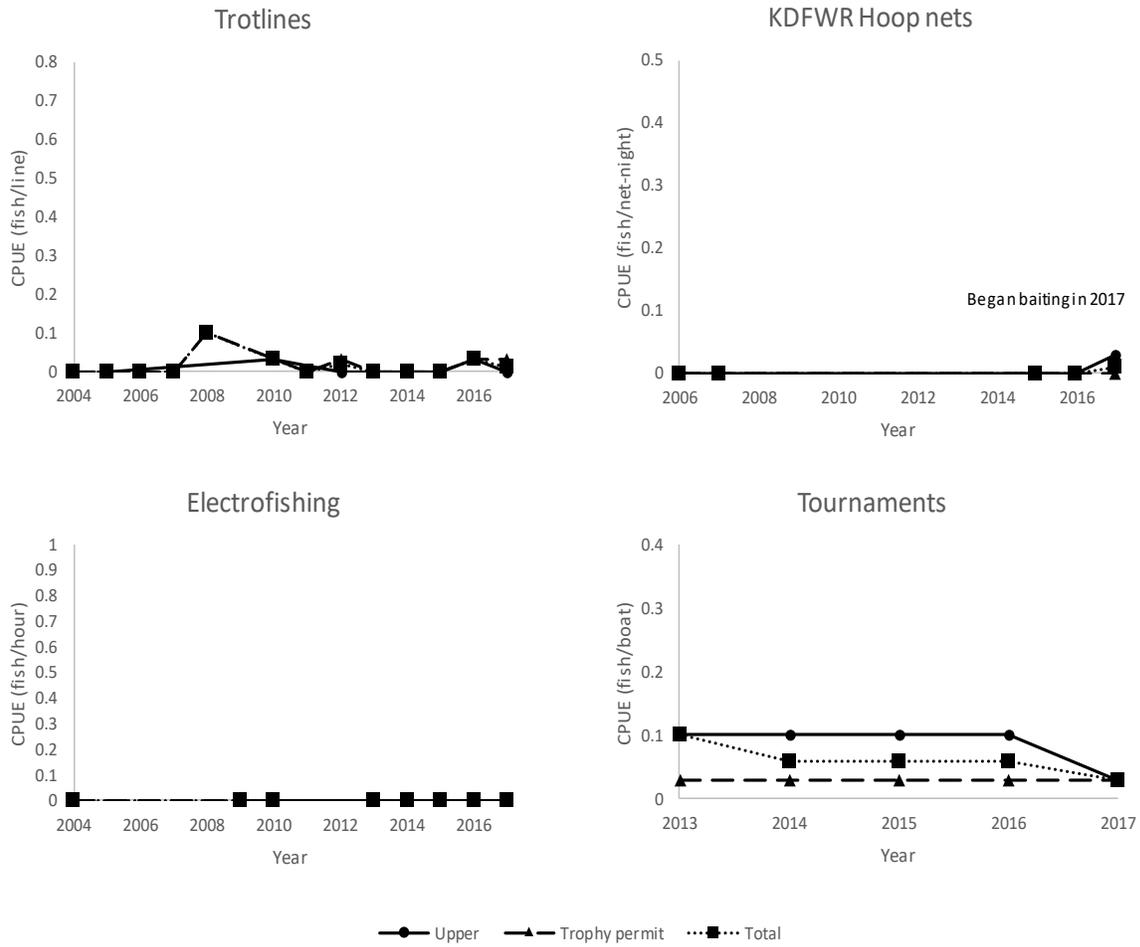


Figure 2. CPUE of trophy channel catfish (≥28.0 in) using trotlines, KDFWR hoop nets, electrofishing, and catfish tournaments on the Ohio River from 2004-2017.

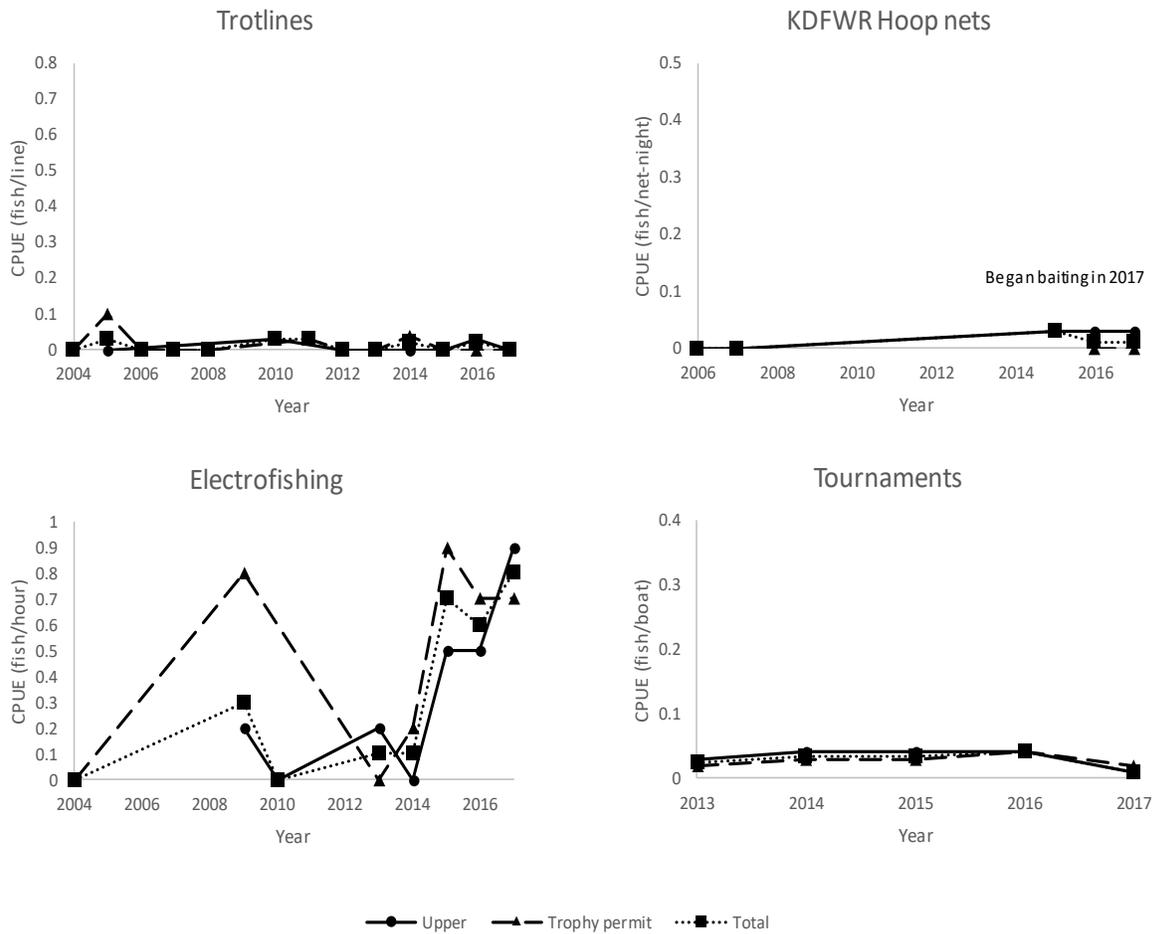


Figure 3. CPUE of trophy flathead catfish (≥35.0 in) using trotlines, KDFWR hoop nets, electrofishing, and catfish tournaments on the Ohio River from 2004-2017.

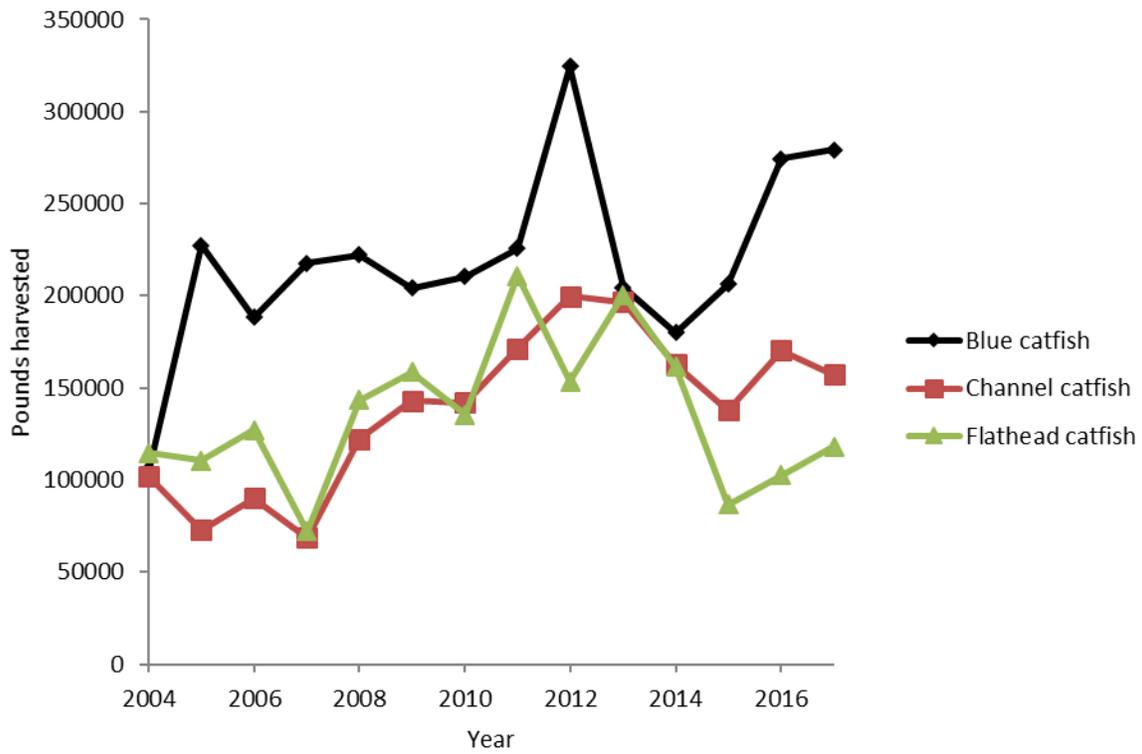


Figure 4. Total pounds of blue catfish, channel catfish, and flathead catfish harvested by commercial fishermen from the Ohio River from 2004 – 2017.

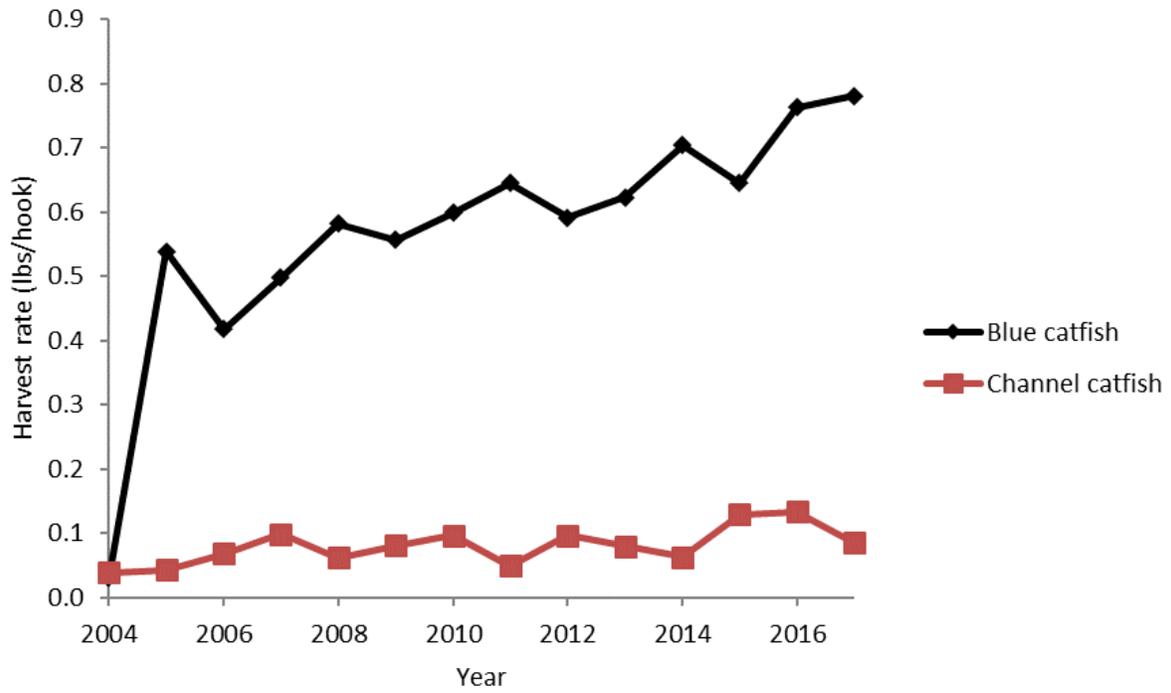


Figure 5. Harvest rate (lbs/hook) of blue catfish and channel catfish harvested by commercial fishermen from the Ohio River from 2004 – 2017.

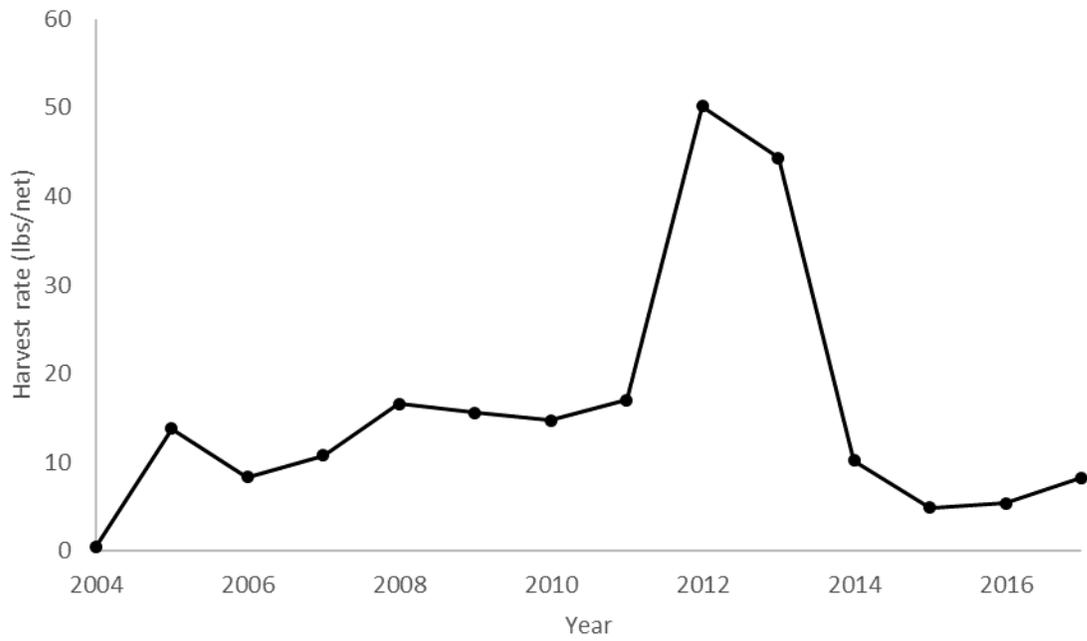


Figure 6. Harvest rate (lbs/net) of flathead catfish harvested by commercial fishermen from the Ohio River from 2004 – 2017.